DOCUMENT RESUME

ED 270 649 CE 044 630

AUTHOR	Sum, Andy; And Others
TITLE	Cracking the Labor Market for Human Resource Planning.
INSTITUTION	National Governors' Association, Washington, DC. Center for Policy Research and Analysis.
SPONS AGENCY	National Occupational Information Coordinating Committee (DOL/ETA), Washington, DC.
PUB DATE	Jan 86
NOTE	317p.
PUB TYPE	Guides - Classroom Use - Materials (For Learner) (051)
EDRS PRICE	MF01/PC13 Plus Postage.
DESCRIPTORS	Career Education; Case Studies; *Data Analysis; Data Collection; *Human Resources; *Labor Force Development; *Labor Market; *Occupational Information; Program Development; Program Evaluation; *Program Implementation

ABSTRACT

This publication is designed to increase the skills and knowledge of practicing human resource staff, private sector decision makers, and university students preparing for careers in the human resources field in the use of labor market and occupational information for policymaking and planning. Chapter 1 reviews human resource issues, concepts and programs. Chapter 2 offers detailed information on the key concepts and measures used to represent labor market activities. Chapter 3 on labor market and occupational information describes the roles of public and private sector organizations in the production of labor market information (LMI), discusses LMI data collection programs, and reviews data classification systems and data synthesis and analysis programs. A discussion of labor market and occupational information applications and issues follows. Chapter 4 focuses on the roles of labor market and occupational information in planning and implementing human resource programs. Chapter 5 demonstrates the potential uses of labor market and occupational information in designing, operating, and evaluating state and local human resource programs. Data are presented for a hypothetical state and local area. Case study materials that simulate a planning exercise and include background, tasks and exercises, tables, and an analysis are appended. (YLB)

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Cracking the Labor Market

For Human Resource Planning

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CRACKING THE LABOR MARKET FOR HUMAN RESOURCE PLANNING

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January, 1986

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ACKNOWLEDGEMENTS

Cracking the Labor Market is one of the results of a grant awarded in June 1984 by the National Occupational Information Coordinating Committee (NOICC), with funds from the U.S. Employment Service and NOICC, to the National Governors' Association Center for Policy Research and Analysis.

We would like to thank Russell Flanders, Executive Director of NOICC and Richard Gilliland, Director of the U.S. Employment Service who make this publication possible. They have been interested in and supported activities to improve the use of information over their careers. The technical support contributed by the U.S. Bureau of Labor Statistics (BLS) through Mr. Thomas Plewes, Associate Commissioner for Employment and Unemployment Statistics was also important throughout the project.

Joan Wills, Director of the NGA Center for Policy Analysis and Research who provided the general direction, support and encouragement for the entire project and this publication in particular deserves special appreciation. Joan has been an advocate of LMI and the use of quantitative information in public sector decision making for many years. Thanks also go to Rae Young Bond, Director of Public Affairs, NGA, for advising us on various publication issues.

The original project was conducted by a training team under the general supervision and guidance of Richard Dempsey, Coordinator of OIS, NOICC. His assistance was especially beneficial in assuring a quality document. The members of the team including John Van Zant, Administrator of the Occupational Education/Regional Occupational Program, Ventura County, California; James Woods, OIS Specialist, NOICC and Von Logan, Director of the Division of Research and Analysis, Michigan Employment Security Commission (MESC) truly deserve special credit. They collectively participated in the planning of the project, in development and review of the project materials and in the conduct of the 1984 and 1985 workshops. In addition, we would like to thank Abel Feinstein, Economist and Departmental Manager of Labor Market Research of MESC and Harvey Ollis OIS Specialist, NOICC, for their assistance with material development and review.

Jan Kary-Dunlavey, Staff Associate, NGA, provided administrative assistance during the project and was particularly helpful with the workshops and in finalizing this document. Her time and effort were essential and are greatly appreciated. Sondra Nelson, also of NGA, is thanked for the many hours she spent editing the copy. Of particular importance to the project was the work of Shirley Christian, Adminstrative Secretary, NGA who was primarily responsible for the production of the materials. In addition, Sheila Palma, Staff Assistant, Northeastern University, provided invaluable support in preparing the first draft of the text. We would also like to thank Ann Lindberg, Secretary, Michigan Division of Research and Analysis and Luisa Farrell, Administrative Secretary, NGA.

Finally, the cover was designed by cartoonist Bud Grace, of Silver Spring, Maryland. We appreciate his time and creative touch.

NGA sought the assistance of a variety of federal and state agencies in the development and review of this document; their help was invaluable and is gratefully acknowledged. Members of the NGA LMI Steering Committee included:

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FORWARD

During the past several years, Congressional support for the development and use of labor market and occupational information systems in the planning of human resource programs at the state and local level has been reaffirmed. The Job Training Partnership and Carl D. Perkins Vocational Education Acts have stressed the desire of Congress that the use of common information systems lead to improved coordination among agencies in the planning and design of programs at the state and local levels. The LMI activities have become increasingly focused as inter-agency in nature and as a state "system function." Currently the state level has primary responsibility for both designing information systems/products and assuring information collection and processing efficiency. Federal LMI funding only provides a base to meet federal needs. As a result, many states have to increasingly supplement this with funding from multiple state sources.

The importance of effective use of LMI in education, employment an training program planning has become heightened at both the state and local levels. At the local level, policy decisions will be made to establish goals and priorities that will determine the identification of target population groups and the specific features of training programs. Program performance will be evaluated at the end of the program year to determine their success in achieving their goals and objectives. Questions that will be asked after the comparisons of actual program outcomes with established performance standards will include:

- To what extent did participants obtain jobs and improve their employment and wages to the planned performance levels?
- If not achieved, why was performance below the planned performance standard?
- What can be done to improve future program performance?

If the original program plan does not accurately reflect labor market conditions,or the needs of target groups, then it is unlikely that program outcomes will meet performance standards. There are several reasons why the planned program activity may not meet performance standard expectations. One reason is that unrealistic goals may have been set. The setting of unrealistic goals or the design of programs with limited effectiveness may have been caused by such factors as the following:

- the exclusive use of subjective information such as political judgments, professional considerations, preconceived ideas, and intuition rather than objective data as the rationale for decision-making;
- the use of incomplete information and data to describe labor market problems and conditions;
- the use of inaccurate and/or outdated information; and
- inappropriate analysis and interpretation of information from existing multiple data sources.

Comprehensive, timely, and statistically reliable data are seldom available in a complete form to provide unassailable answers. Users need to understand how available data will assist them in making a more informed decision. They should be aware of:

- the planning process and the implications for them of inter-agency comprehensive planning;
- what major sources of information are currently available, in what format data appear, where and how these can be found and what can be legitimately requested of state and/or federal LMI agencies;
- how data can be integrated and organized for analysis;
- how data can be analyzed in conjunction with other factors such as political judgements;
- how data can be presented in decision-making contexts; and
- how to identify their unmet data needs and design appropriate methods for addressing these data gaps.

Because there was no formal national mechanism available in 1983 to respond to these needs, a project was coordinated by three federal agencies to provide technical assistance to states and was awarded to the NGA Center for Policy Research and Analysis. The cooperative effort was funded by the U.S. Employment Service, the National Occupational Information Coordinating Committee, and technical support was provided by the Bureau of Labor Statistics. An NGA steering committee, including appropriate federal agency and state and local representatives, was established to provide guidance to the project and to participate in materials review and the pilot test. The objectives of the project activities were to:

- improve the effective use of available Labor Market and Occupational Information in the planning and evaluation of training/education and employment programs at the state and local levels; and
- provide a cost-effective mechanism to maintain a training capability at the state/local levels over the long run.

Through this multi-agency effort, the states have been provided with a set of generic training materials.

A team approach including data users, producers, and trainers was used to develop the training package and to provide training for the regional pilot train-the-trainer workshops and follow-up national workshop. Many of the states that participated in the workshops formed training teams that have or will directly provide planning and information use workshops to users and will thereby further develop their own training capabilities and improve the linkages between the state producers and users.

The 4 volume set of materials was constructed for a minimum of 3-day training session. The background text the, original Volume I, which formed the basis for this publication is quite comprehensive in its coverage of human resource planning methods and labor market information uses and can be used as a core text for undergraduate and graduate level courses in human resource planning. The case study materials, originally Volume 2, included here as Appendix A were designed to allow states to independently tailor and adjust the local area planning scenario to their own needs, and where appropriate insert state specific data into the tables and exercises.

The title of this publication Cracking the Labor Market For Human Resource Planning reflects the main themes developed in the 5 individual chapters. When appropriately and effectively used, labor market and occupational information can be a major asset in planning and designing human resource programs at the state and local levels. This publication is designed to increase the skills and knowledges of practicing human resource staff, private sector decision-makers, and those university students preparing for careers in the human resources field in the use of labor market and occupational information for policymaking and planning. The expectation is that improved decisionmaking will result and increase the effectiveness of existing programs in solving this nation's unemployment and poverty problems.

Joan L. Wills
Director
NGA Center for Policy Research
and Analysis

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Chapter One:

Human Resource Issues, Concepts and Programs

Background: Human Resource Issues From 1960-1990

During the remainder of the 1980's, the American economy will be faced with a number of important challenges. Among these will be achievement of continuous real economic growth, avoidance of a resurgence of inflation, further declines in overall levels of unemployment, and a substantive improvement in the current economic position of minorities and the nation's poverty population. There are no simple solutions to the diverse problems that will be encountered in attempting to meet these challenges. It is evident, however, that the human resources of our nation will have to be effectively marshalled, developed, and utilized if further progress is to be achieved in our efforts to foster economic growth, create additional jobs, reduce unemployment, and combat poverty in the years ahead.

As Adam Smith, the author of The Wealth of Nations, noted more than 200 years ago, the annual output of a nation's economy is determined by the degree to which its population is actively engaged in the production of goods and services and their efficiency (productivity) in producing such goods and services.[1] Human resource programs can potentially play a key role in improving the utilization of the labor force and labor productivity by upgrading the academic and vocational skills of the working-age population and facilitating their ability to adapt to economic and technological change.

During the late 1950's and early 1960's, substantial concern was expressed over the relatively low rates of real economic growth being produced by the nation's economy. Since the 1960's, a substantial body of research has been devoted to an examination of the relationships between the human resources of individuals and nations and the attainment of economic and social goals.[2] The findings of many of these studies have shown that the human capital possessed by individuals does influence their labor force behavior, employability, productivity, and earnings and can contribute to the attainment of key national, state, and local economic goals, including increased output potential, lower unemployment, and a reduced incidence of poverty.

Previous research, in fact, has illustrated quite clearly that real economic growth is dependent not only upon the total number of hours of labor applied to the production of goods and services, but also upon the quality of those labor inputs and the degree of efficiency with which they are utilized. Research into the nature and sources of past economic growth indicates that increased quality of labor inputs as reflected by the number of years of formal schooling completed by workers was a major contributor to growth in real national income per capita during the twentieth century.[3] The increased life expectancy of workers brought about by improved health and living standards throughout this period also facilitated an expansion of the output of our nation's economy.[4] In addition, the amount of work experience of the nation's employed population increased during this same period boosting the productivity of labor and thereby increasing the real output of the nation's economy.[5]

In comparison to the past decade, the growth of the American economy over the remainder of this century will depend more heavily on qualitative improvements in labor inputs.[6] Projected declines in the rate of growth of the nation's labor force and in the average number of hours of work per year will produce slower growth in the total number of manhours available for the production of goods and services. During the remainder of this decade, the overall national labor force is projected to grow at an annual rate only two-thirds as high as that during the 1970's and this growth rate is projected to decline even further during the first half of the 1990's.[7] Achievement of high rates of economic growth for our nation will be increasingly dependent upon improvement in the productivity of labor and higher rates of labor utilization.[8] Growth in labor productivity will have to rise well above its trend in recent years if real economic growth of 4 to 5% per year is to be achieved over the next decade.[9] While an increased rate of physical capital investment and improved technology should also play key roles in our efforts to improve productivity, a better educated, more highly trained, more motivated and adaptable work force will be critical to the success of such productivity improvement efforts. The rigorous formal educational training of Japanese youths is frequently cited as one of the factors responsible for the adaptability and efficiency of the current Japanese economic system.

The persistence of relatively high rates of unemployment in the U.S. during the past decade has led to critical reassessments of the nature and causes of labor market problems and to new human resource policy initiatives aimed at improving the utilization of our working-age population.[10] While overall unemployment levels have declined throughout the nation during 1984, serious structural unemployment problems continue to exist, including high rates of unemployment among young workers, minorities, high school dropouts, and blue collar workers in distressed economic communities.[11] The economic problems of key minority groups will likely remain unaddressed in the absence of effective labor market strategies to combat their current employment problems. In his recent keynote address to the National Urban League's annual convention, John Jacobs, the President of the League, remarked that "Jobs are the single central burning issue on the black agenda in 1984" and proposed a series of new job creation, training, and education initiatives to combat the employment problems of black Americans.[12]

Long-term unemployment problems have increased in magnitude during the past decade, with historically high levels of long-term unemployment registered in 1982.[13] A major portion of this recent increase is clearly attributable to cyclical factors; however, structural elements, including major employment declines in basic manufacturing industries within selected metropolitan areas of the Northeast and North Central regions, have also played a key role. The pace of technological change and the restructuring of domestic industries resulting from changing domestic demand for goods and services and the pressures of foreign competition are projected by some analysts to accelerate during the remainder of this century.[14] While the dislocated worker programs funded under Title III of the Job Training Partnership Act are a response to these new structural problems, the need for effective human resource policies to facilitate the ability of workers to adapt to such changes without incurring substantial personal earnings losses may well grow. The absolute number of dislocated workers currently projected to be in need of such services is not unmanageable; however, the development of an effective system for delivering needed services to the dislocated worker population at the state and local level will not occur automatically.[15]

Unemployment problems are not randomly distributed among members of the nation's labor force. Research into the structure of unemployment rates has consistently found substantial differences in unemployment rates among labor force participants with varying amounts of formal educational attainment.[16] For example, during 1983, the annual average unemployment rate for all persons 25-64 years old was 9.0%. The unemployment rate for college graduates 25-64 years old during that year was only 3.5%, a small fraction of the unemployment rates encountered by high school graduates (10.0%) and persons completing fewer than 12 years of formal schooling (15.8%).[17]

The unemployment problems of youth and older workers (55 years and older) also tend to vary substantially by schooling status. Young high school dropouts (16-21 years old) are nearly 3 times as likely to be unemployed as high school graduates in the same age group.[18] Older workers lacking high school diplomas are far more likely to be unemployed than high school and college graduates and are substantially more likely to withdraw from active participation in the labor force as they reach their late 50's and 60's.[19] Re-employment problems seem to be far more severe for the poorly educated, older worker displaced from his or her job.

The number of persons residing in poverty households throughout the nation has been on the rise in recent years. Findings of the most recent survey of the Bureau of the Census revealed that 15% of the nation's population lived in households with income below the official poverty line during 1983.[20] Our current poverty problems clearly will not be substantially reduced by aggregate economic growth alone even though the increased availability of jobs brought about by economic growth does facilitate a reduction in the number of poor persons. Intensive and comprehensive education and training programs designed to combat the human capital deficiencies of the poor and provide them with increased access to jobs with earnings above the poverty threshold will be needed to complement macro-economic strategies for alleviating poverty problems throughout the nation.

Since 1964, when the federal government declared War on Poverty, a series of education, employment, and training programs, including the vast majority of those currently funded under the Job Training Partnership Act of 1982, have been administered to combat the problems of poverty. The probability of a working-age individual being poor at any point in time has consistently been shown to be significantly influenced by the amount of formal education that he or she possesses. For example, among all 22-34 year olds in the U.S. during 1981, only 6.5% of those with 13 or more years of schooling were poor. The poverty rate of high school graduates in the same age group was 11.4%, while the incidence of poverty among high school dropouts was nearly 28%. Increased formal educational attainment does not eliminate the possibility of being poor, but it does significantly reduce the probability of being poor. The provision of training services to the poor has frequently been successful in improving their long-term earnings. Investments in such programs as Job Corps and CETA classroom and on-the-job training appear to have generated earnings gains and other social benefits sufficiently high to offset the full social costs involved in their operation. Human resource programs by themselves cannot eliminate poverty, but they can contribute to a reduction in the size of the poverty population and an amelioration of the income inadequacy problems of the poor.

Among the major economic goals of our nation is the achievement of gains in the real wages of American workers over time and improvements in the living standards of American families. The real earnings of American workers and their families are critically influenced by the amount and type of human capital possessed by family members. Investments in formal education at the secondary and post-secondary levels have consistently been found to be associated with higher real earnings for individuals over their working lives.[21] While the economic returns of investments in a college education were estimated to have fallen for young white males in the early 1970's, the absolute size of the economic payoffs have remained fairly substantial. In addition, an improvement in the demand/supply balance for new college graduates in the late 1970's appears to have increased the size of the earnings differentials in favor of young college graduates.[22] Other educational investments also appear to generate favorable returns. The employment and earnings advantages of completing high school remain quite substantial for all subgroups of the young adult population, particularly women and blacks.[23] Having a high school diploma seems to be more essential for labor market success in the 1980's than in prior decades.

In addition to the favorable effects of formal educational attainment, the employability and earnings of American workers are also influenced by the basic academic skills they possess and by certain types of vocational skills. Persons with higher basic academic skills (reading, word comprehension, arithmetic skills) not only tend to complete more years of formal schooling, but also tend to be employed more frequently and earn higher annual incomes than their peers with similar amounts of formal schooling.[24] Participation in a number of secondary and post-secondary vocational programs also has been found to significantly improve the employment and earnings of young adults.[25] The size of these income gains, however, does tend to vary by type of participant and type of program.

Human Resource Concepts

A working definition of the human resource concept was developed by Frederick H. Harbison, the late Princeton University economist who forcefully argued the case for human resources as the critical element in the economic development of nations.[26] In his book Human Resources as the Wealth of Nations, Harbison defined human resources as "the energies, skills, talent, and knowledge of people which are, or which potentially can or should be, applied to the production of goods or the rendering of useful services."[27] Human resources are viewed by Harbison as the ultimate determinant of national economic growth and development since they are the only active factor of production. All other factors of production are passive in the sense that decisions to invest in new capital goods are made by human actors: capital equipment must be manufactured, installed, and operated by human resources, land must be cultivated by labor, and technological knowledge must be developed by man and applied to the production of goods and services. The true wealth of a nation is ultimately dependent on the extent to which it has developed the human resources of its population and the degree to which it efficiently utilizes those human resources in the production of goods and services.[28]

Frederick Harbison's views on appropriate criteria for judging the economic performance of a nation were shared by the late Eric Hoffer, known as the "working man's philosopher."[29] In The Temper of Our Time, Hoffer remarked that:

> "The efficiency of a society should be gauged not only by how effectively it utilizes its natural resources, but by what it does with its human resources... Up to now in this country we are warned not to waste our time but we are brought up to waste our lives."[30]

Given their varied nature, the human resources of a nation's population are developed in a variety of formal and informal settings over an entire lifetime. Cognitive abilities are developed in the home, in formal educational settings, and in one's daily interactions with other members of society.[31] Job skills are also acquired in a variety of different settings.[32] Some vocational skills are learned in formal classroom settings (vocational/technical schools, community and junior colleges, four-year universities); many others are informally acquired in on-the-job settings as part of the normal production process and others are obtained through apprenticeship programs involving a combination of formal classroom training and supervised employment experience.[33] Employment experience itself is a human resource investment that frequently enhances the productivity of workers through the "learning by doing process," thereby increasing the earnings of individuals over their working lives.[34] The current aging of our nation's work force is expected to positively affect productivity growth during the remainder of the decade.

A number of different types of human resource problems will exist at any given point in time. To increase our understanding of these problems, economists have attempted to classify human resource problems into several different categories. Existing human resource problems can be initially classified into underdevelopment problems and underutilization problems. Specific examples of each of these general types of human resource problems are presented in Table 1-1. The individual types of human resource problems appearing in Table 1-1 can be combined to form an index of human resource problems. A number of research efforts to develop such indices have been undertaken during the past decade. The measures developed include subemployment, employment and earnings inadequacy, and labor market hardship indices.[35]

Table 1-1
Types of Labor Underdevelopment and Underutilization Problems

Underdevelopment	Underutilization
• Limited formal schooling (high school dropout)	• Open unemployment
• Deficient basic skills (reading, writing, math)	• Hidden unemployment (discouragement, hoarding of labor)
• Inadequate knowledge of world of work	• Underemployment
• Lack of specific vocational skills	• Mal-employment (over education or training)
• Limited work experience	

Underdevelopment problems can appear in a number of different forms, including limited formal educational attainment, basic skill deficiencies, an absence of marketable vocational skills, and lack of substantive work experience. These underdevelopment problems in turn can lead to underutilization problems. For example, those individuals failing to complete high school frequently find themselves placed at the back of hiring queues, if not entirely excluded from consideration for existing jobs. Persons lacking basic academic skills are significantly less likely to complete any given level of formal educational attainment and will be viewed as more costly to train and inherently less productive by prospective employers.[36] Basic skill deficiencies will reduce the range of jobs for which one will be considered, thereby increasing the likelihood of unemployment and reducing the expected earnings from employment.

Underutilization problems will also appear in a variety of different forms.[37] Unemployment problems refer to the inability of active job seekers to obtain employment. Unemployment by itself does not necessarily lead to economic hardship for workers or their families although it does significantly increase the probability that a family with an unemployed member will fall below the poverty line during a given year.[38]

A problem of "hidden unemployment" has also been identified in the human resource literature. The concept of hidden unemployment has been used to describe several different types of labor market problems. For example, there are those researchers who refer to the hidden unemployed as those individuals who do not enter the labor market in search of employment during slack economic periods due to limited job prospects.[39] The discouraged workers form part of the population of the hidden unemployed. Since these individuals are not actively seeking work, they will not be counted in the official unemployment statistics; however, their absence from the real economy does represent a substantive human resource problem. The failure of the economy to utilize these labor inputs inflicts output losses on the nation similar to those of unemployed workers.

A second type of hidden unemployment problem arises from the inefficient use of employed labor by firms during periods of economic recession. This problem has also been referred to as labor hoarding.[40] During the early stages of an economic downturn, firms do not reduce their payrolls proportionately to output. The existence of fixed labor costs, the reluctance to layoff skilled workers who might not return to the firm when business conditions improve, and the potential adverse effects of layoffs on worker morale and productivity prevent firms from reducing labor input in line with output declines. Workers that remain employed tend to be used less efficiently, thereby reducing the productivity of labor as measured by output per hour of work. Labor hoarding is not unique to the United States, but tends to occur frequently in other nations as well, including Japan with its lifetime employment arrangements in key industrial sectors of its economy.[41]

The ability to obtain employment does not automatically imply the elimination of human resource problems. A number of employed individuals may experience underemployment problems. Similar to the situation for hidden unemployment, the concept of underemployment also has been defined in a number of different ways by researchers in the human resource field.[42] In recent years, however, the U.S. Congress developed specific definitions of underemployment for use in administering employment and training programs under the previous CETA system.[43] The underemployed were defined as those individuals who were either employed part-time involuntarily or who were working full-time, but unable to earn an income above the official poverty line. Knowledge of the numbers and characteristics of the underemployed can be important for human resource planning since a relatively high proportion of the population of persons experiencing various forms of labor market hardship will be classified as underemployed rather than unemployed. In poverty neighborhoods within the U.S. and in most developing nations around the world, underemployment problems typically are far more pervasive than open unemployment problems.[44]

A final type of human resource problem arises from the employment of individuals in jobs that do not fully utilize their actual skills and abilities. The problem is frequently referred to as mal-employment to distinguish it from problems of underemployment. Rigorous measurement of mal-employment problems is complicated by the fact that precise estimates of the level of formal education and skills needed to perform work adequately in specific occupations are difficult to make. Several recent studies have attempted to estimate the size and nature of the "overeducation" problem in the U.S. and have concluded that the problem appears to have risen over time.

Overeducation, however, does not automatically imply lower economic returns to education in the form of reduced earnings. Workers with above average formal educational attainment for an occupation may be less costly to train and more productive on the job. Such higher productivity should be accompanied by higher real earnings for such workers. The existence of mal-employment problems should not be ignored since they may lead to reduced earnings potential and worker dissatisfaction. The problem of mal-employment is often closely tied to mismatches between the outputs of higher education systems and the actual occupational employment requirements of the nation. Improved career guidance and counseling and changes in the distribution of enrollments by academic discipline can play key roles in preventing future mal-employment problems. Labor market and occupational information can provide valuable inputs into these career guidance and counseling activities.

Human Resource Programs: Legislation to Address Economic and Social Problems

Human resource programs funded by federal, state, and local governments have the potential for increasing the amount of human capital possessed by the working-age population and improving the utilization of human resources in the production of goods and services. In addition to the basic human resource development provided by the education system, a diverse array of remedial and supplemental human resource programs currently operate throughout the nation. The labor exchange functions performed by the state Job Service offices, vocational/technical training programs at the secondary and post-secondary level, Job Training Partnership Act programs, vocational rehabilitation programs, and state and local economic development programs are designed in large part to improve the development and utilization of human resources in our state and local communities.

1. Alternative Human Resource Strategies

Given the diverse nature of human resource problems, a range of alternative program strategies should be available to combat these problems in an effective manner. A listing of alternative types of human resource strategies appears in Table 1-2. These strategies are classified into two categories identical to those previously used to describe different types of human resource problems. These two categories are Strategies for Developing Human Resources (preventive strategies) and Strategies for Combatting Underutilization Problems (remediation strategies). The programs appearing under each general category are not meant to be all encompassing; however, they do cover a substantial majority of all programs administered throughout the nation during the past decade.

Table 1-2
Alternative Types of Human Resources Strategies

Strategies for Developing Human Resources

- Increasing formal educational attainment
- Improving basic skills
- Teaching vocational/technical skills
- Providing world of work instruction

Strategies for Combatting Underutilization Problems

- Improving the match between unemployed workers and available jobs
  - Labor exchange operations
  - Job search training programs
  - Job training and retraining programs
- Increasing the number of available job opportunities
  - Economic development programs
  - Public service jobs programs
  - Work experience programs
  - Job preservation programs
- Changing the existing structure of jobs
  - Creating new types of jobs
  - Altering job content
  - Developing new access paths to jobs
- Increasing the employability and earnings of the economically disadvantaged
  - Strengthening labor force attachment
  - Improving productivity of the disadvantaged through education and training
  - Increasing access to high quality jobs

Among the strategies for developing human resources are those aimed at increasing formal educational attainment, improving basic skills, equipping future labor force entrants with marketable vocational skills, increasing their knowledge of the world of work, and improving work attitudes and behavior. Earlier in this chapter, recent research evidence on the contribution of formal education attainment, basic skills, and selected vocational skills to improvements in the employability and earnings of youths and adults was reviewed. Programs that develop the knowledge, skills, and abilities of individuals prior to their entry into the labor market should be capable of reducing future underutilization problems. Programs with such objectives will be considered preventive programs in this text.

An array of preventive human resource programs has been implemented during the past two decades. Dropout prevention programs have been implemented to reduce the probability of students leaving high school prior to graduation. Work experience and job programs for economically disadvantaged youth, including the Summer Youth Employment Program and the recently-completed Entitlement Demonstration, were designed in part to provide incentives for disadvantaged high school students to remain in school through graduation.[45] The "effective schools" movement was intended to improve learning environments in high schools and bolster academic skills of students.[46] Vocational education programs at the secondary level have been supported in part on the grounds that they can improve the prospects of graduation for certain subgroups of students and provide marketable vocational skills capable of reducing future unemployment problems and improving the productivity of the work force.[47] School-to-work transition programs have frequently attempted to provide instruction in career planning, world of work, job search, employment interviewing, and job holding skills to facilitate the movement of participants from high school to the job market immediately upon graduation.[48]

A diverse array of human resource programs can be implemented to combat existing underutilization problems.[49] One major subset of such programs is aimed at improving the efficiency with which labor markets operate in allocating existing labor to available jobs. The case for human resource planning has often been based on the assumption that such planning could assist in improving the operational efficiency of labor markets. In his classic book Manpower Planning in a Free Society, Richard Lester argued that:

> "Properly conceived manpower planning in our type of economy works with market forces... it enlarges choice and helps the market to operate more effectively by anticipating and arranging for early corrective measures to avoid serious manpower imbalances."[50]

A number of different types of human resource programs have been designed to improve the efficiency of labor market operations. The state job service's counseling, testing, and job matching activities are primarily designed to increase the speed of and improve matches between job seekers and employers with available job openings.[51] Job search training programs are intended to improve participants' knowledge of labor market structure, effective job search methods, and interviewing techniques in order to reduce the duration of search time needed to obtain employment and increase their satisfaction with the jobs obtained.[52] Job training and retraining programs for the unemployed, including both classroom training and on-the-job training, are designed to equip participants with vocational skills and knowledge of occupational areas in current demand to improve their long-term employability and earnings.[53]

Underutilization problems, including unemployment and underemployment, may exist as a result of an inadequate number of available job opportunities. Under such circumstances, job search, job training, and retraining programs will be of limited effectiveness in solving general unemployment and underemployment problems. To combat major job deficit problems, a number of different job creation strategies can be implemented. State and local economic development activities are aimed at improving the economic attractiveness of local economies to recruit new firms and retain existing companies.[54] The ability of such economic development programs to combat job deficit problems will be dependent on the number of net new jobs that they bring into the local economy. Efforts to coordinate state and local economic development activities with existing job training programs should increase the likelihood that local unemployed and economically disadvantaged residents will benefit from the job creation efforts.[55]

Public sector employment and work experience programs have also been used at different points in time to address job deficit problems. Job creation activities under the Emergency Employment Act of 1971 and the public sector job programs under CETA provided immediate employment opportunities for the unemployed and the economically disadvantaged in public and private nonprofit agencies. These programs were primarily targeted at adults and were designed to combat unemployment problems resulting from general aggregate demand deficiency and structural problems of depressed economic communities.[56]

Work experience programs for youths and adults typically have multiple objectives. On the one hand, they have been used to provide immediate subsidized job opportunities for groups, such as economically disadvantaged youth, facing serious barriers to employment in the unsubsidized labor market.[57] At the same time, the work experience and job behavior skills gained by participants in these programs were expected to enhance their ability to transition into the unsubsidized labor market upon termination from these programs.[58] Supported Work Programs providing close supervision, graduated work assignments, and high support have been implemented to enhance the employability of subgroups of the structurally unemployed population, including long-term public assistance recipients, young high school dropouts, ex-offenders, substance abusers, and the physically and mentally handicapped.[59]

During the past few years, increased debate has taken place over the need for new national industrial policies to improve the competitiveness of U.S. industries.[60] A variety of alternative policy proposals have been advanced by advocates of national industrial policies. Some of these proposals would provide financial and technical assistance to basic manufacturing industries (steel, autos, metal machinery) to improve their ability to compete in world markets, thereby preserving, if not expanding, job opportunities in these industries. Human resource programs aimed at preserving jobs in basic industries have been operated in a number of Western European nations, including Sweden and West Germany.

A number of different job upgrading, restructuring, and redesign programs have been implemented over the past fifteen years to combat underutilization problems, boost worker productivity, and increase job satisfaction.[61] One subset of such programs, including the New Careers programs, attempted to create new paraprofessional positions in state and local government and private nonprofit agencies. Such positions were intended to provide the poor with new employment opportunities that would enable them to achieve incomes above the poverty line and simultaneously expand public services.[62] Job upgrading and restructuring programs in private industry have been designed to improve promotion opportunities for workers in low-wage occupations and increase productivity of the work force.[63] Experiments with job restructuring in the private sector have revealed the complexities of altering the composition of job duties in a manner that will enhance long run productivity.[64] Worker upgrading programs have frequently involved the creation of new access paths to higher level occupations in companies. Changes in the structure of the firms' internal labor markets, including extensions of existing career ladders, offer opportunities for lowskilled workers to acquire the training needed for advancement into higher-skilled, higher-wage positions.[65]

Finally, a number of federally-funded human resource programs, including the majority of those funded under the previous CETA system and those now administered under the Job Training Partnership Act, are intended to improve the long-run employability and earnings of the economically disadvantaged population, a group whose human resource problems are frequently quite distinct from those of the unemployed. In enacting the JTPA legislation, the Congress appeared to recognize this critical distinction, identifying increased labor force attachment and real earnings as the basic goals of the Title II programs for economically disadvantaged adults and youths.[66] Many of the human resource strategies described above have been used to improve the employability of the economically disadvantaged. The "demand-side" information needs for planning such programs are quite similar to those aimed at improving the efficiency of labor markets. However, if future human resource programs are to succeed in resolving the income inadequacy problems of the economically disadvantaged, they must not simply match them with existing jobs, but also provide them access to jobs providing earnings streams sufficiently high to enable them to rise above the target income thresholds.[67]

2. Human Resource Program Planning

Human resource programs are intended to prevent or combat problems of underdevelopment and underutilization. Effective planning of human resource programs is thus dependent on information regarding the nature and causes of existing human resource problems and their likely persistence in the future. Given the fact that human resource problems exist in a variety of different forms and that sufficient resources are not available to solve all or even a major share of them in any given year, choices must be made as to which and whose human resource problems to combat with available resources. While federal and state legislation authorizing human resource programs frequently establishes general criteria for participant eligibility, state and local human resource agencies have some latitude in determining whom to serve with available monies.

The literature on planning in both the private and public sectors contains a varied number of definitions of "planning".[68] Most of these definitions, however, contain a number of common elements. These include the establishment of goals and objectives (a mission statement), the selection of strategies (means) for achieving those objectives, and the allocation of resources (funds, staff, capital) to activities to achieve those goals and objectives. For example, a noted political scientist, Edward Banfield defined the nature of planning in the following manner:

> "An actor is considered as being oriented toward the attainment of ends. Planning is the process by which the actor selects a course of action (a set of means) for the attainment of his ends. It is good planning if these means are likely to attain the ends or maximize the chances of their attainment."[69]

The available literature on planning tends to differentiate alternative types of planning activities. For example, in Table 1-3, strategic planning activities consist of a quite different set of tasks than tactical planning.[70] Strategic planning is viewed as more global in its orientation, being focused on an assessment of the current and projected environment within which the agency will operate, the development and ongoing refinement of a mission statement for the agency, the designation of specific goals and objectives to be attained, and the selection of program strategies that will maximize the goal attainment of the agency, subject to the budgetary and other resource and political constraints that it faces. Strategic planning activities, thus, address two fundamental issues: "what to do" and "how to do it."

Table 1-3
Basic Elements of Strategic and Tactical Planning for Human Resource Programs

Strategic Planning	Tactical Planning
• Assess the current and projected labor market environment.	• Identify the numbers and characteristics of the individuals to be served by the system.
• Define the mission of the system, including goals and objectives and timetables for their attainment.	• Determine the level and types of services to be provided to the participants.
• Select strategies for achieving these goals and objectives.	• Select contractors for delivering the above services to participants.
	• Specify expected timing of delivery of services to participants by contractors.
	• Specify types of outcomes expected from the delivery system and their levels.

Once goals and objectives have been established, specific program strategies need to be selected. Decisions on the selection of appropriate strategies should be based on knowledge of current and projected job opportunities, the characteristics of those jobs, the perceived likelihood of participants obtaining access to such jobs, and the ability to place participants in such jobs to achieve the objectives of the program. To be effective, human resource policymaking and planning decisions must be based upon knowledge of labor market problems, labor market conditions, labor market structure, and the actual functioning of labor markets. Underlying the selection of appropriate strategies should be explicit judgements about the ability of a specific program undertaken at a given time to achieve the objectives of the human resource system at some pre-determined future date.[71]

While federal, state and local funds are used to support these activities, the planning and administrative responsibilities for the delivery of the client services of most of these programs occurs at the local level. Such local discretion in decision-making regarding program design and delivery has been justified on the grounds that local government agencies and planning organizations would be more informed of local labor market conditions, developments, and problems and be better positioned to design effective solutions to these problems. The decision-making process will generate demands for specific types of labor market information and information that is responsive to the perceived needs of decision-makers will be valued most highly. Information itself should thus be viewed as an integral part of the internal planning process, not as elements external to the human resource policymaking and planning process. Similar views about the proper role of information in corporate planning have been expressed by Peter Drucker. As he observed:

> "Long-range planning is more than organization and analysis of information; it is a decision-making process. But even the information job cannot be done except as part of an organized planning effort; otherwise, there is no way of determining which information is relevant."[72]

In contrast to strategic planning, tactical planning or operational planning is oriented toward the day-to-day operations and management of the human resource delivery system. Tactical planning activities address the following basic set of issues: who shall receive what services from which program operators at what time. Tactical planning, thus, involves a determination of which individuals will be served by existing programs, the types of services they will be provided, the contractors responsible for delivering such services, and timetables for the movement of participants into and out of program activities.[73] These planned performance levels provide the basis for monitoring actual performance during the period of program operations.

While strategic and tactical planning do address somewhat different issues, they should not be considered as totally independent activities. Tactical planning decisions should be closely integrated with strategic decisions and the staff assigned to these various planning functions should coordinate their activities in an effective manner.[74] The characteristics of the individuals to be served by the programs should correspond closely to the target groups identified in the strategic planning process. The specific program services provided to participants should be in close accord with the general strategies selected for combatting existing human resource problems. The planned outcomes of program activities in the aggregate should correspond to the short-term objectives of the state and local human resource system.

Human resource planning should be viewed as an on-going set of activities involving an analysis of changing labor market realities and their implications for human resource problems, an assessment of the availability of job opportunities, and the design and administration of existing programs. The success of planning should be gauged not by the existence of readable, relevant documents submitted in a timely manner to funding authorities, but instead, by the extent to which the program activities implemented under the plan contributed to a solution of the local human resource problems identified in the strategic planning process. David Ewing has defined long-range planning as "the job of making things happen that would not otherwise occur."[75] This view of corporate planning seems applicable to human resource programs as well. Human resource planning efforts, if successful, should lead to programs that reduce human resource problems (unemployment and poverty) to a greater extent than would have occurred in the absence of active program intervention in the labor market.[76]

Effective planning and management by themselves will not guarantee the long-term success of local employment and training systems, but the evidence from a number of studies indicates that they can contribute in a significant manner to improved program performance. For example, a study of alternative types of planning systems adopted by CETA prime sponsors revealed that their overall performance in achieving key employment outcomes was significantly related to the type of planning system used.[77] The authors classified planning systems into three categories: Future Oriented, Operations Management, and Crisis Management. Future Oriented systems were characterized by high quality staff committed to the employment and training system on a long-term basis, planning systems that went well beyond routine allocation of monies to existing service providers, active efforts to involve the business community in the decision-making process, and frequent monitoring of on-going program performance.

The Future Oriented sites tended to adopt a long run view in the planning of their programs, taking into consideration the role that a given program would play in the desired delivery system in future years. Program planning tended to be based on both formal sources of information on target groups and job opportunities and informal information on specific firms' hiring policies, expected hiring plans, and training needs. As a group, the Future Oriented sites outperformed the other sites on practically every basic measure of performance. They tended to achieve higher job placement rates, experience lower non-positive termination rates, and have lower costs per job placement.

Planning and management styles also appear to substantively influence the performance of secondary and post-secondary vocational and technical programs. Several recent studies by the National Center for Research in Vocational Education focused on the institutional factors associated with high rates of placements of graduates in training-related occupations.[78] The authors of these studies discovered that a number of program management, planning, and operation variables appeared to influence the ability of programs to achieve high rates of training-related placements.[79] Higher training-related placement rates tended to occur in educational institutions characterized by the following conditions:

- Administrators, teachers, and guidance counselors shared a consensus on the importance of placing students in training-related jobs and were committed to the attainment of that goal.

- The school's job placement office coordinated job placement activities, but had teachers play an active role in job development and placement.

- School staff utilize formal and informal surveys of local employers' needs for workers in planning and designing their programs and solicit employers' views of the work quality of graduates in assessing overall program performance.

- Teachers contact local employers on a frequent basis to discuss job placement activities of the program.

The available literature suggests that human resource planning and management systems do significantly influence the long-run success of human resource programs. The existence of clearly defined goals and objectives shared by program staff at all levels seems to be critical to the effectiveness of a number of human resource programs. Planning systems that systematically assess and interpret formal and informal labor market information also seem to produce more favorable outcomes. Finally, training institutions that seek to actively involve employers in the planning and design of programs and encourage frequent staff contact with the business community tend to achieve more favorable employment outcomes for their participants.

3. Using Labor Market and Occupational Information in Human Resource Program Decision-Making

To facilitate and improve the planning and effectiveness of many of these key human resource programs, the U.S. Congress over the years has provided funding for the development of labor market and occupational information systems.[80] These systems have been expected to provide data on occupational demand and supply critical to the proper planning of all employment-related education and training programs within a state. Labor market and occupational information systems have been viewed as mechanisms for improving the decision-making process used to allocate available monies for human resource programs and promoting the long-term effectiveness of such programs. And by improving the planning process, Congress anticipated that the capability of such programs to achieve their goals and objectives would be enhanced.[81] In passing the JTPA legislation, for example, the U.S. Congress called upon the U.S. Secretary of Labor to "develop a comprehensive system of labor market and occupational information on a national, regional, state, local or other appropriate basis, which shall be made publicly available in a timely fashion."[82] Similar legislative language appeared in the original CETA legislation in 1973 and in the CETA Amendments of 1978. The Carl Perkins Vocational Education Act of 1984 continued provisions similar to those in the 1976 Education Amendments calling for the development of comprehensive occupational information systems at the national and state levels.[83]

During the past decade, a substantial degree of progress has been achieved by federal and state agencies in developing labor market and occupational information systems.[84] Many of the data elements contained in these systems are useful for planning and managing a variety of human resource programs at the state and local level. Information needs, however, are not fixed. Changing economic developments, the existence of new labor market problems, and shifting public policy concerns create new and increasing demands for labor market information to assist in the formulation of employment and training policies and programs.[85] Information gaps continue to exist in a number of key areas; however, increased knowledge of both existing information sources and efficient methods for supplementing them can assist in filling such gaps in an effective manner.

Production of additional labor market information by itself will not necessarily improve the planning, management, and effectiveness of human resource programs. Staff within human resource agencies should be able to obtain access to available data, and they should possess the skills necessary for interpreting such data and applying them in a meaningful manner to the planning process for their agencies. Limited awareness of available data, lack of knowledge of labor market information concepts and measures, limited skills in interpreting and analyzing labor market data, and distrust of available data have frequently been found to severely limit the use of existing labor market and occupational information in the planning and management of human resource programs.[86]

Labor market and occupational information are not only critical to the strategic planning process, but also can be used in a variety of activities related to the day-to-day operations of human resource programs. Career guidance activities and world of work instruction are dependent upon the availability of timely and detailed occupational information. To be effective, occupational exploration activities need to provide participants with information on the educational and training requirements of jobs, types of skills and abilities needed to perform jobs, and physical demands and working conditions associated with jobs.[87] The occupational information systems and career information delivery systems developed by State Occupational Information Coordinating Committees are capable of providing counselors, teachers, and participants in the above types of programs with current information on existing and projected job opportunities by occupation in states and local areas.[88] Knowledge of world of work issues has been found to significantly improve the labor market experiences of many young persons, including economically disadvantaged youth.[89]

Job search training programs typically are designed to improve participants knowledge of labor market structure, the operation of labor markets, the structure of job opportunities, access paths to various jobs, and effective methods of job search.[90] Local labor market information can be used as core materials for the curriculum of such training programs, providing participants with a more informed understanding of the structure of local job opportunities by industry and occupation and with information on current job openings. Resource guides that provide instruction in more effective use of the yellow pages of telephone directories are available to assist in the self-directed job search of participants.[91]

Job developers and placement staff responsible for marketing on-the-job training programs in the private sector and assisting graduates of classroom training programs in securing employment also are dependent on information on the structure of jobs in the local economy and the locations and characteristics of available job openings. Existing formal sources of labor market information, including industry and establishment employment data and occupational staffing pattern data, can be formatted in a manner highly useful for job developers.[92] Effective and systematic strategies for marketing program services and placing program graduates can be developed with the use of such labor market information by-products.

In many states, participant followup activities can be carried out with the use of wage records maintained by state agencies as part of the operations of the unemployment insurance system in their states. These establishment-based reports provide information on the social security number of individual workers covered by the unemployment insurance system and their earnings during each calendar quarter.[93] These data can be used to provide information on both the pre-program and post-program earnings and earning gains of participants in various human resource programs, including vocational education programs, community college programs, and Job Training Partnership Act programs. In developing the JTPA legislation, the Congress noted that training programs should be viewed as investments in the human capital of participants and that programs funded under the Act should be evaluated in part on the basis of the economic returns obtained from such investments. Use of earnings records to evaluate JTPA program performance represents another practical application of available labor market data in the operations and management of human resource programs.

A case for frequent and effective use of formal and informal sources of labor market information in the planning, day-to-day operations, and management of human resource programs can be made on the grounds that it will contribute to the long-term effectiveness of such programs. As Garth Mangum of the University of Utah recently observed:

> "Good quality training does not guarantee good results in terms of employment and income improvement for its recipients. The status of labor market demand, the access of the recipients to the demand institutions, the consistency between the demand and the training, and the learning ability of the training participants are additional variables that enter into the success rate."[94]

4. The Effectiveness of Human Resource Programs

A diverse number of recent research and evaluation findings provide support for the effectiveness of human resource programs. Participation in a number of human resource programs has been found to significantly reduce the probability of unemployment. Recent graduates of secondary vocational programs have been able to avoid unemployment problems in the early school leaving years to a greater degree than general academic students with similar amounts of education.[95] A number of school-to-work transition programs for "at risk" high school seniors and intensive education/training programs for economically disadvantaged dropouts, such as those operated by Job Corps centers, have been able to significantly reduce unemployment problems of young participants.[96] Job training programs for disadvantaged adults funded under the Manpower Development and Training Act (1962-73) and the Comprehensive Employment and Training Act (1974-83) were frequently successful in increasing the labor force attachment and improving the long-term employability and earnings of participant subgroups, particularly women and those with limited prior employment experience.[97]

Long-term earnings improvements, however, were found to be critically influenced by the ability of these training programs to move participants into unsubsidized jobs in the period immediately following termination from the local CETA system.[98] Immediate job placement appeared to be a necessary, though not a sufficient, criterion for long-term success. As was true of previous training programs administered under the Manpower Development and Training Act, CETA training programs were more successful in raising the post-program earnings of adult female participants than those of men. These results are largely attributable to the fact that these training programs have facilitated the re-entry of women into the labor force, increased their labor force attachment, and prepared them for jobs in greater demand in local labor markets, especially in the clerical and health-related occupations.[99]

Evaluations of the effectiveness of secondary vocational education programs in improving the employability of participants have often revealed mixed findings. Several recent studies based on a new national longitudinal survey of young Americans have revealed that both academic and vocational credits in high school significantly influence the early post-high school employment and earnings experiences of young men and women.[100] The size of the impacts of these two types of course work tend to be fairly similar for youths, particularly women. These studies also have revealed, however, that vocational credits tend to payoff for youths more frequently and by significantly larger amounts when the skills learned in high school are actually used by participants on their jobs.

Similar findings on the importance of training-related placements were produced by a recent national study on employer perceptions of the benefits received from hiring vocational training graduates.[101] A national sample of private sector employers provided information on the training costs, productivity, and wages of nearly 3,500 newly-hired workers. An analysis of the data submitted by employers revealed that newly-hired workers with in-school vocational training backgrounds related to the jobs for which they were hired were less costly to train than new employees without such training and were considered to be more productive in similar jobs than new hires lacking such training. The ability to place graduates in jobs related to their field of training, thus, appears to be a critical determinant of the economic payoffs of such training to participants and employers. As we noted earlier, formal and informal labor market information can assist in improving the training-related placement rates of programs.

The importance of close ties between programs and the employer community is also illustrated by the findings of a number of evaluations of school-to-work transition programs for high school students. One study of cooperative vocational and work study programs revealed that, in the aggregate, they did not significantly improve the early labor market experiences of participants relative to students in the same or similar high schools not enrolled in such programs.[102] However, those school programs that either placed a major emphasis on achieving program-related placements or developed close working relationships with local employers were able to significantly improve the labor force attachment, employability, and earnings of participants.

School-to-work transition programs emphasizing career guidance and world of work instruction for economically disadvantaged youth also have a mixed record of performance. Several programs providing intensive world of work instruction to high school seniors without job development or job placement assistance failed to produce any significant improvements in their employability, earnings, or schooling experiences in the first post-program year.[103] Other similar school-to-work transition programs produced a rather wide range of employment impacts for participants (0 to 20%). Those delivery agents emphasizing intensive job placement, job development, and followup support services produced the highest employment gains for economically disadvantaged participants.[104] School-to-work programs that have well-defined employment objectives, that mandate staff involvement with local employers, that build upon knowledge of employers' hiring practices and policies, and that closely monitor job development and placement activities are much more likely to be successful in improving the post-high school employability and earnings of economically disadvantaged youth.

Chapter Two:

Labor Market Activity–Concepts and Measures

Introduction

A comprehensive understanding of the key concepts and measures used to represent labor market activities is essential to the proper use of such information in the planning process. Other uses of labor market and occupational information for operating, and managing, and evaluating human resource programs at the state and local levels are equally critical. Data cannot be effectively used, however, unless there is a clear understanding of just what real world behavior or status it measures. Underlying the construction of all information systems are key concepts and measures that define and describe the data elements contained in such systems. Any data element that has not been rigorously defined cannot be effectively measured.

Labor market concepts are designed to represent various aspects of labor market activity, which in general describe how people behave with respect to making a living and how employers behave in hiring, retaining, and compensating workers who are engaged in producing goods and services for consumers. The amounts and types of labor that the population (16 years and older) is willing to provide at given levels of compensation is largely influenced by the number and characteristics of working age people. The labor force is influenced by factors which determine the size of the working-age population, such as trends in birth/death and migration/immigration rates, by factors which alter the composition of the population, including demographic (age, sex, race) and socio-economic (educational attainment, training, income, etc.) characteristics. The number and kinds of jobs available at different wage levels in business establishments and public sector agencies are determined by private and public demand for various types of goods/services produced, the amount of capital accumulated, level of worker productivity, the type and level of technology used, and the size distribution and geographic location of firms.

The interactions between most individual labor force participants and most employers typically result in the individual finding and being hired for a job and the employer filling a job opening or vacancy with a qualified worker. These interactions are influenced by such factors as the amount of pay, job entry requirements, type of working conditions (physical demands and work environment) and promotion opportunities an employer offers and an individual is willing to accept. In a labor market area, employment typically occurs when qualified workers accept what jobs are available under the conditions they are offered. Unemployment occurs when the available jobs are unacceptable to qualified workers or when there are no jobs available. In some cases, certain individuals and certain employers face barriers which limit or hamper, to various degrees, effective interaction. Human resource services, such as educational remediation and job training and placement, are provided by the public sector to assist these people and various incentives are given to assist businesses in overcoming these barriers.

Labor exchange activity is typically bounded by a specifically defined geographic area called a labor market area. This area in which individuals seek employment and employers recruit workers is focused most frequently on the commuting area around the work place. Commonly used methods of local job recruitment include word-of-mouth publicizing of job vacancies, posting of vacancy notices at the firm's entrance, notifying union hiring halls, use of state and/or private employment agencies, and/or the placing of help wanted advertisements in local area newspapers. On the worker side, similar considerations prevail. Typically, workers also look for jobs within commuting distance from their homes. Commuting distance around the work place is a flexible concept, depending on public transportation, public roads, availability of automobiles or carpools, and the willingness of workers to spend time in travel.

While the labor market for most jobs is confined to the local communities in which workers live, this is not true for all jobs. Many professional and managerial jobs have national labor markets. Workers recruited through professional organizations or personal contacts expect to move from city to city throughout their working lives and they apply for jobs in distant places. Similarly, workers in occupations, such as structural iron work, where jobs end when the project is finished, find themselves having to move from one city to another.

The Bureau of Labor Statistics (BLS) defines a labor market area as a geographic area consisting of a central city or cities and the surrounding territory within commuting distance. Conceptually, it is an economically integrated unit within which workers may readily change jobs without changing their place of residence. The labor area takes its name from the central city (or cities), but may include one or more entire counties, except in New England where towns are considered the major geographic units.

In all states except those in the New England region and Puerto Rico, a Metropolitan Statistical Area (MSA), a descendant of the Standard Metropolitan Statistical Area (SMSA), is defined by OMB as a group of counties of at least 100,000 total population containing at least one city or U.S. Bureau of the Census urbanized area with a population of at least 50,000. Some MSAs qualified under previous standards so they do not have to meet the current criteria. MSAs are made up of central and outlying counties. A central county is one that contains a central city or has at least 50% of its population within the Census urbanized area. Outlying counties are included in an MSA based on their population densities and the volume of commuting to the central counties. MSAs in New England have similar requirements, except that cities and towns, rather than counties, are used for the definitions.

The definitions of a labor market area and a Metropolitan Statistical Area are based on geographic criteria and population size criteria, respectively. While the two concepts are compatible, they are not synonymous. For example, a state could have several labor market areas, but only one may have a population large enough to be designated as an MSA. In conducting analyses of employment data in particular, it is often recommended that a labor market area form the geographic basis.

Labor market activity is also time specific. For many operational purposes (i.e., job placement), current labor exchange activity is of interest—how many jobs are available today and how many qualified applicants are available now. But for other purposes (i.e., program planning), a projection of labor market activity to some future date is of interest. For example, how many jobs will be available in 1987, what will be the occupational characteristics of those jobs and how many qualified people will be competing for those jobs are questions of interest to a JTPA planner who in 1985 is establishing 2-year training programs.

Individuals in the Labor Market

Knowledge of the labor force behavior, employment status, earnings, and occupational characteristics of residents in a labor market area and the types of labor market problems they encounter is critical to the planning and design of many human resource programs, which have as one of their basic missions the combatting of labor underutilization problems.

Work Related Behavior of the Population: Labor Force Concepts

The labor force behavior of the working-age population has a substantive impact upon the ability of our nation to achieve a number of important economic and social goals, including an expansion of the real output potential of the economy, improvements in the real incomes of American families, and reductions in the incidence of poverty among families and individuals. As noted in the previous chapter, the civilian labor force of the nation is projected to grow for the remainder of this decade at an annual rate substantially below that of the 1970's. The achievement of high rates of economic growth during the remainder of this decade and the first half of the 1990's will require increased attachment to the labor force by youth, older workers, and the economically disadvantaged, an improved rate of utilization of the available labor force, and a rise in output per hour of work.

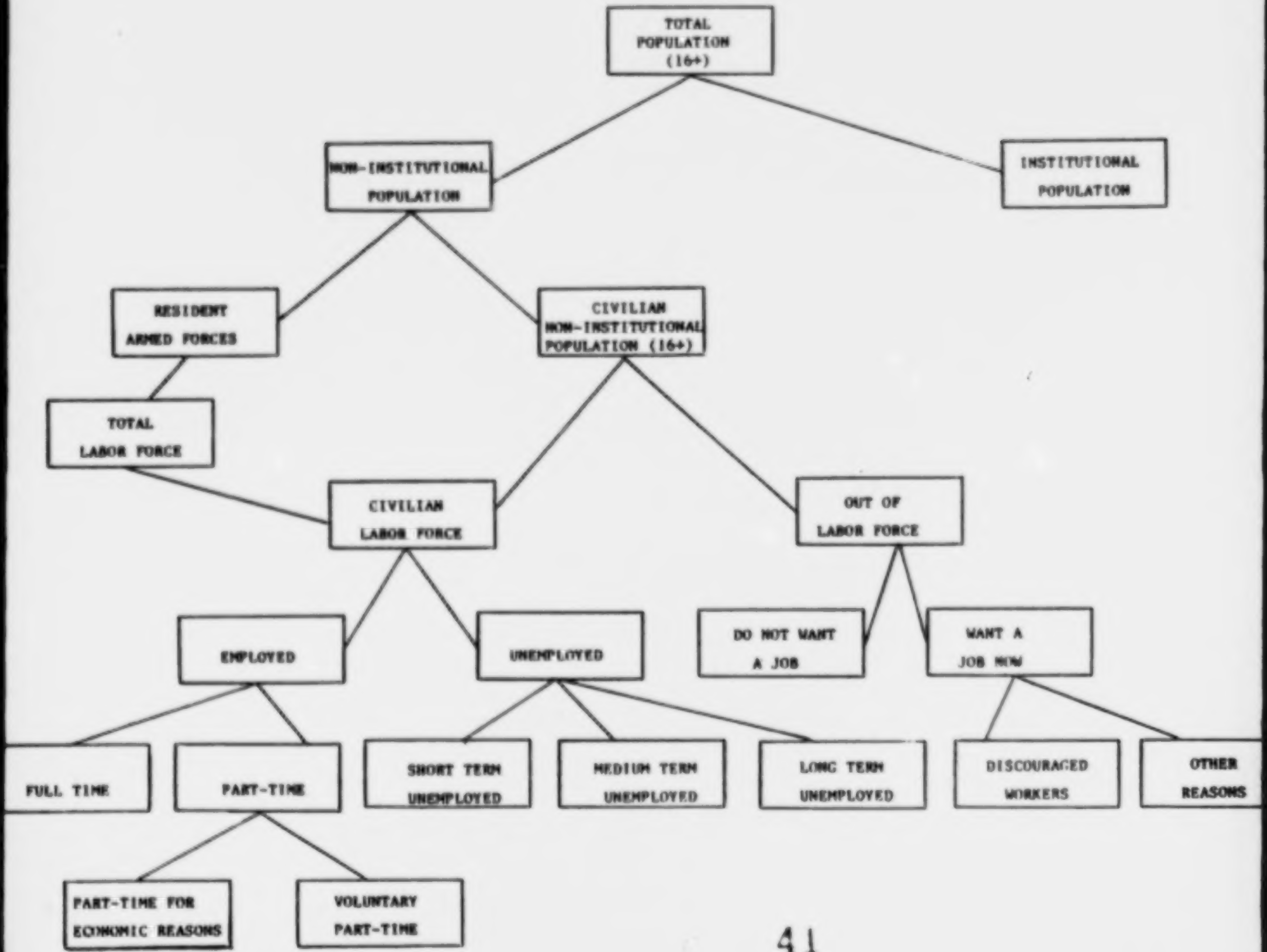
The population and labor force categories used by the Bureau of Labor Statistics to classify working-age individuals and collect data as part of the Current Population Survey (CPS) are illustrated clearly in Figure 2-1. The CPS is a survey of about 60,000 occupied household units from every state and the District of Columbia. Respondents are interviewed monthly to obtain information on the social and economic characteristics of working-age household members, including information on those working, looking for work and those not in the labor force.

The working-age population of the United States is defined by BLS as all individuals 16 years of age or older. Prior to January of 1967, the lower age limit had been 14 years of age; however, the limit was raised to 16 years of age on the recommendation of the Gordon Committee, a 1960's presidential task force on employment statistics.[1] The CPS continues to collect labor force information on 14 and 15 year olds; however, these data are published separately from the national totals.[2] The lower limit of 16 years reflects the age at which students can voluntarily leave school in the vast majority of states. Lower age limits of 14 and 15 are used by Canada, Japan, and most Western European nations.[3] It should be noted that there is no maximum age limit in the BLS definition. Labor force data are collected in the CPS from all persons over 16 in the civilian noninstitutional population of the nation. A few nations, such as Sweden, do apply upper limit age cutoffs (such as 74 years old) in defining their labor force.[4]

The box at the top of the figure represents the total population of persons 16 and older. The total population consists of the non-institutional population and the institutional population, i.e., those persons living in correctional institutions, nursing homes, etc. The box in the middle of the page represents the civilian non-institutional population of working age individuals. This group contains all persons 16 years of age and older who are not members of the resident armed forces and who do not reside in institutions such as nursing homes, prisons, or mental hospitals.[5] As the diagram in Figure 2-1 indicates, each person in the civilian noninstitutional population (age 16 years and older) is classified into one of three mutually exclusive labor force categories. These three categories are employed, unemployed, and outside of the labor force. In addition to classifying persons into the categories described above, the labor force data collected by the Current Population Survey and similar household surveys can also be used to provide additional information on the types of jobs held by employed persons, the nature of the unemployment problems being encountered, and the actual job desires of persons not actively participating in the civilian labor force.

The sum of the number of employed civilians and the number of people unemployed is equal to the civilian labor force. Those persons who do not meet the definitions for being either employed or unemployed are classified as "not in the labor force." This is a residual labor force category containing individuals enrolled in school, those with family care responsibilities, the disabled, and retirees. Not all members of this group should be

Figure 2-1
Labor Force Concepts Used in the Current Population Survey


TOTAL POPULATION (16+)
NON-INSTITUTIONAL POPULATION
INSTITUTIONAL POPULATION
RESIDENT ARMED FORCES
CIVILIAN NON-INSTITUTIONAL POPULATION (16+)
TOTAL LABOR FORCE
CIVILIAN LABOR FORCE
OUT OF LABOR FORCE
EMPLOYED
UNEMPLOYED
DO NOT WANT A JOB
WANT A JOB NOW
FULL TIME
PART-TIME
SHORT TERM UNEMPLOYED
MEDIUM TERM UNEMPLOYED
LONG TERM UNEMPLOYED
DISCOURAGED WORKERS
OTHER REASONS
PART-TIME FOR ECONOMIC REASONS
VOLUNTARY PART-TIME

considered as completely removed from the labor force and uninterested in being employed. Movements into and out of the labor force occur throughout the year. At any point in time, nearly 10% of the persons classified as not in the labor force express a desire for employment, including that subgroup of non-participants referred to as the discouraged workers.[6] Knowledge of the size and characteristics of those non-participants desiring employment can be important for the proper targeting of the services of human resource programs.

The resident armed forces are currently included in national estimates of the total labor force. Given the shifts in the 1970's to a volunteer armed forces, it was recommended by the National Commission on Employment and Unemployment Statistics that those armed forces members based in the U.S. be considered as employed individuals conceptually similar to those in civilian jobs. The Commission in its final report to Congress in 1978 also recommended that these people be included in the estimates of the national labor force and in the calculations of the national unemployment rate.[7] Both Labor Secretary Marshall and Secretary Donovan accepted these recommendations and, beginning in January 1983, the Bureau of Labor Statistics revised its procedures for introducing data on armed forces personnel into the national labor force statistics.[8] It should be noted, however, that data on the resident armed forces are not included in any state or local labor force measures.

1. Employed Status: Full-Time and Part-Time Employment

Employed persons as defined by the Bureau of Labor Statistics in the CPS are those who:

- worked for pay or profit at any time during the payroll period which includes the 12th day of the month;
- held jobs, but were temporarily absent from them for such reasons as vacation, weather, personal illness, or an industrial dispute; or
- worked without pay in a family-owned business for 15 or more hours.

The total number of employed persons as shown in Table 2-1 are estimated by the CPS survey and are reported in monthly state and local labor force press releases. This employed group includes three class of worker breakdowns: those occupying wage and salary jobs further subdivided into private and government workers; those who are self-employed; and, unpaid family workers. Wage and salary workers receive wages, salaries, commissions, tips or pay in kind from a private employer or from a government unit. Self-employed persons are those who work for profit or fees in their own business, profession, or trade, or operate a farm. Unpaid family workers are persons working without pay for 15 hours a week or more on a farm or in a business operated by a member of the household to whom they are related by birth or marriage. The latter two groups combined accounted for nearly 9.8 million of the 100.8 million persons employed on average in the U.S. during 1983.[9] Finally, it should be noted that in household surveys, each employed person is counted only once in the employment total, regardless of the number of jobs that he or she may have held at the time of the survey.

Employed persons can be classified into full-time and part-time categories. The Bureau of Labor Statistics utilizes a cutoff point of 35 or more hours per week to define full-time work, while all persons working 34 hours or less are classified as part-time workers.[10] The Current Population Survey collects information from employed respondents on the number of hours that they worked during the week of the 12th of the month, known as the reference week of the survey.[11] Data on the number of persons employed full-time or part-time in the U.S. during 1983 are presented in Table 2-2. Of

Table 2-1
Class of Worker Breakdown

Total Employed

- Agricultural employment
  - Wage and salary workers
  - Self-employed workers
  - Unpaid family workers

- Nonagricultural employment
  - Wage and salary workers
    - In covered employment
      - Industries covered by State U.I. laws (including some state and local government employees)
      - Federal employees
      - Railroad workers
    - In noncovered employment
      - Nonprofit institutions
      - The remainder of state and local government employees
  - Self-employed
  - Unpaid family workers
  - Private household (domestic) workers

Table 2-2
Full-Time and Part-Time Status of Employed Persons (Age 16+)
U.S.
Annual Averages, 1983

Employment Status	Number of Persons Employed (in 1000's)	Share of Total Employed (in %)
Total Number of Employed Persons	100,834	100.0
Persons Employed of on full-time schedules	80,395	80.4
Persons Employed on part-time schedules	20,439	20.4
• Voluntary part-time	14,172	14.1
• Part-time for economic reasons	6,266	6.2

Source: U.S. Department of Labor, Bureau of Labor Statistics, Employment and Earnings, January 1984, "Table 7," page 164.

the 100.8 million persons (16 years and older) employed on average during 1983, approximately 80% were employed on full-time schedules. The remaining 20.4 million employed persons worked on part-time schedules. Part-time work has been increasing faster than total employment during the past few decades. Between 1968 and 1981, nearly 30% of the total change in the number of nonagricultural wage and salary workers was attributable to part-time employment.[12]

Not all persons working part-time choose to do so voluntarily. In the CPS, part-time workers are asked to cite their reasons for working less than 35 hours. The responses provided enable part-time workers to be classified into either a voluntary part-time category or a part-time for economic reasons category. The latter category includes individuals who worked fewer than 35 hours for such reasons as slack work, material shortages, and an inability to find full-time jobs. During economic downturns, the number of persons employed part-time for economic reasons does tend to rise. During 1983, nearly 6.3 million of the 20.4 million persons employed part-time were working fewer than 35 hours for economic reasons. The reduced hours of work by this group represents a form of labor underutilization that results in lost earnings for affected workers and their families and lost output for society as a whole. Individuals employed part-time for economic reasons have also been regarded as "underemployed" persons for eligibility determination in past human resource programs, including CETA programs.[13]

As noted above, part-time employment has accounted for an increasing share of all wage and salary jobs in the American economy during the past two decades and is projected to grow at an above average rate through 1995.[14] Part-time employment opportunities are not, however, uniformly distributed across all industries. The retail trade and service industries tend to generate the bulk of the voluntary part-time jobs in the economy, accounting for 83% of all voluntary part-time wage and salary jobs during 1983.[15] Teenagers, women with young children present in the home, and older workers tend to rely upon the part-time job market for a major share of their jobs. JTPA programs focused on in-school youths and older workers will need to develop close working relationships with firms providing part-time employment options for their work force.

2. Unemployed Status: Types and Durations

Knowledge of the number and demographic/socioeconomic characteristics of the unemployed is an important first step in identifying the magnitude and distribution of unemployment problems. From a human resource planning perspective, it would also be desirable to have access to information on the types of unemployment problems being encountered by residents and the length of time that these individuals have been unemployed. The unemployed, as defined by the BLS in the CPS, are those persons who meet each of the following three criteria:

- performed no work at all for pay or profit in the week of the 12th of the month;
- looked for a job at some point in the past four weeks; and
- were available for work in the survey week.[16]

There are two subgroups of unemployed persons who do not have to meet the strict job search criteria by looking for work. These are individuals who are on layoff from their previous jobs and are awaiting recall and those persons waiting to report to a new job within the next 30 days.[17] The concept of unemployment is, thus, quite different from that of joblessness. The jobless are those persons who are without jobs. The unemployed are those jobless individuals who are actively seeking work (as defined by the four-week job search test) and are available for work. The unemployed should be considered, conceptually, as the unutilized, but effectively available labor supply.

Unemployment can result from a variety of different developments. Among these are unemployment associated with the delay in finding a job (frictional unemployment), unemployment associated with seasonal fluctuations in production in certain industries (seasonal unemployment), unemployment resulting from inadequate effective demand for workers to produce goods and services (cyclical or aggregate demand deficiency unemployment), and imbalances between the skills needed by employers with available job openings and those possessed by the unemployed (structural unemployment). Geographic mismatches between the residences of unemployed workers and the locations of firms with available job openings can also generate a second type of structural unemployment problem.

The Current Population Survey collects information from unemployed respondents on their reasons for being unemployed and the duration (in weeks) of their current spells of unemployment. Findings from the 1983 national CPS survey on both of these issues are summarized in Table 2-3 below.

Table 2-3
Distribution of Unemployed Persons by Reasons for Being Unemployed and Duration of Current Spell of Unemployment
U.S.
Annual Averages, 1983

Unemployment Characteristics	Number of Persons Unemployed (in 1000's)	Percent of Total (%)
Total Number of Unemployed Persons	10,717	100.0
Reason for Unemployment:		
Job losers	6,258	58.4
On layoff	1,780	16.6
Other job losers	4,478	41.8
Job leavers	830	7.7
Re-entrants	2,412	22.5
New entrants	1,216	11.3
Duration of Unemployment Spell:		
Less than 5 weeks	3,570	33.3
5-14 weeks	2,937	27.4
15 weeks and over	4,210	39.3
27 weeks and over	2,559	23.9

Source: U.S. Department of Labor, Bureau of Labor Statistics, Employment and Earnings, January 1984, "Tables 12 and 14," pages 169-170.

The unemployed are classified in the CPS by "reason for unemployment" into one of the following four categories: job losers, job leavers, new entrants, and re-entrants. Job losers are subdivided into those "on layoff" from their former job and "other job losers." Workers in some industries which have seasonal fluctuations in the production of goods and services have regular periods of unemployment which often last for weeks or months depending on overall business conditions. For example, seasonal unemployment occurs in farming, construction, and other types of industries where outdoor work lags during the winter months. Many retail stores have a big Christmas season and then lay off the temporary workers they have hired. The apparel industries resort to seasonal layoffs after production peaks aimed at getting clothing into the stores for the spring and fall seasons' fashion shows. The automobile industry lays off workers during its annual model change in the late summer.

The latter group of job losers not awaiting recall consists of individuals whose former jobs were eliminated as a result of a permanent reduction in force or a plant closing.[18] On average during 1983, slightly more than 58% of the unemployed were job losers, a quarter of whom were on layoff from their former jobs and awaiting recall. Job leavers accounted for only 8% of the unemployed. This result is not surprising given the high rate of unemployment (9.6%) during 1983, which dampens voluntary turnover of the work force. Unemployed new entrants and re-entrants comprised the remaining one-third of the unemployed, with unemployed re-entrants out-numbering new entrants by a factor of two to one. Nearly one half (47.4%) of the unemployed teenagers during 1983 were new entrants experiencing difficulties in finding their first job.[19]

The distribution of the unemployed by reason for unemployment is not constant from year to year, but rather tends to be influenced by overall labor market conditions and the size of new labor force entrants. As labor market conditions improve and the unemployment rate falls, a higher fraction of the unemployed tends to be composed of job leavers, new entrants, and re-entrants. During an economic recession, layoffs eventually will rise at a rate faster than that of other sources of unemployment, and a higher share of the unemployed will be accounted for by job losers. For example, during 1979, when the annual average unemployment rate was only 5.9%, job losers represented less than 40% of the total number of unemployed persons in the nation.[20]

Knowledge of the number and characteristics of unemployed job losers not expecting recall would be particularly useful in identifying the "dislocated worker" population. This group of unemployed workers has been designated as the target group for the delivery of training services under JTPA Title III programs and as a target group for vocational training and retraining services under the Carl D. Perkins Vocational Education Act. To be considered eligible for participation in JTPA dislocated worker programs, an unemployed person must have lost his or her last job and have limited prospects for re-employment in the same or similar occupation in the local labor area in which he/she resides.[21] Unemployed job losers not expecting to be recalled to their former jobs will represent the vast majority of individuals eligible for services under JTPA dislocated worker programs.

Data on the duration of on-going spells of unemployment are also collected by the CPS survey. During the interviews, unemployed respondents are asked to indicate how many consecutive weeks they have been unemployed.[22] Annual average data from the 1983 CPS reveal that one-third of the unemployed had been out of work for less than 5 weeks, another 27% had been unemployed for 5-14 weeks, and nearly 40% had been unemployed for 15 weeks or longer.[23] Persons unemployed for less than 5 weeks are typically regarded as "short-term unemployed" or frictionally unemployed. This type of unemployment is typically associated with the delay experienced by new entrants and re-entrants in finding a job and getting hired. It simply takes time for some workers to find a job. Workers must find places where they can apply for work, they must file applications, and they must wait for interview results. It has been estimated that approximately 2 percent of the labor force is unemployed at any one time because of the time it takes to get a job. The size of this pool of unemployed workers depends in part on the efficiency of labor market placement institutions and labor market conditions. For example, the duration of frictional unemployment rises during a recession because it takes longer to get a job.

Those persons unemployed 15 weeks or longer are considered to be "long-term unemployed." This latter group is frequently considered to be a major target group for human resource programs, given the perceived structural problems of these individuals and the greater economic hardship accompanying long-term unemployment. There is often an imbalance between the skills needed by employers and those possessed by long-term unemployed workers. When a computer manufacturer is hiring new employees, unemployed steel mill workers may not qualify because the skills they have are not those needed in the computer industry or the wages offered for production jobs are not acceptable to these unemployed workers. These failures of matching arise from changes in the structure of the economy and from shifts in demand from one industry to another or from one locale to another. It is most evident when there are many unemployed workers in an area at the same time that there are jobs remaining unfilled. Not all mismatches are skill related. Some exist due to unattractive wages and working conditions.

Careful analysis of data on unemployment durations has revealed that the number of long-term unemployed persons is quite sensitive to business cycles, increasing far more rapidly than total unemployment during an economic recession.[24] For example, while 58% of the unemployed were long-term unemployed during 1983, only 33% of the unemployed had been out of work for 15 weeks or longer during 1979 when the unemployment rate was under 6%. These findings suggest that some portion of long-term unemployment may be more indicative of cyclical economic developments than structural labor market problems.

Detailed knowledge of state and local labor market conditions is needed to properly interpret data on unemployment durations. Human resource planners should be cautious in using data on unemployment durations to identify "structural" problems among various subgroups of the unemployed population. Research at the national level has revealed that certain subgroups of the unemployed, including teenagers, adult women, and racial minorities, are substantially more likely than adult white males (age 25-54) to end their spell of unemployment by withdrawing from the labor force.[25] Withdrawals reduce the estimated durations of on-going unemployment spells for these groups, thereby concealing the existence of structural barriers to their employment. Data on long-term unemployment, thus, appear to be a better barometer of structural problems among prime-aged workers, particularly males, than for other unemployed groups in the labor force.

3. People Outside The Labor Force: The Labor Force Overhang and Discouraged Workers

The number of persons actively participating in the labor force at any point in time will be influenced to some degree by overall labor market conditions. For example, during periods of high and rising unemployment, some of the unemployed and other persons who are potential labor force participants will become discouraged from actively seeking work and either withdraw from the labor force or simply remain outside of the labor force.[26] Labor economists have frequently attempted to estimate the size of this "labor force reserve" or pool of "hidden unemployed."[27] In its final report to the President in 1962, the Gordon Committee recommended that the Bureau of Labor Statistics undertake research through the Current Population Survey to obtain additional data on the size and characteristics of these "discouraged" workers, who are individuals not actively participating in the labor force, and to ascertain their reasons for not actively seeking work.[28] Since 1967, the Current Population Survey has included questions designed to ascertain the current job desires of non-participants and measure the number of discouraged workers. Non-participants are asked whether they "want a regular job now, either full- or part-time."[29]

The findings of the 1983 CPS with respect to these issues and the reasons why persons outside the labor force were not looking for work are summarized in Table 2-4 below. On average during 1983, there were 62.7 million persons (age 16 years and older) throughout the nation who were not actively participating in the civilian labor force. Of this group, approximately 6.5 million persons, or 10.4% of all non-participants, expressed a desire for part- or full-time employment at the time of the survey. This group of individuals has been referred to as the "labor force overhang" or the "labor force reserve," consisting of persons who may enter the labor force if employment opportunities become available.[30] The labor force overhang does contain an above average proportion of secondary workers, including youths and married women, rather than family heads; however, a relatively high fraction of the economically disadvantaged population also are members of the labor force overhang.[31] Previous longitudinal research on the actual labor force behavior of the group comprising the labor force overhang has revealed that slightly more than 50% of this group will in fact enter the labor force during the following twelve months and that a relatively high fraction of them will succeed in obtaining work.[32] Discouraged workers, however, are less likely to enter the labor force, suggesting more severe structural barriers to their employment.

Table 2-4
Job Desires of Persons Outside of the Labor Force
U.S.
Annual Averages, 1983

Group	Number of Persons Age 16 Years and Older (in 1000's)	Percent of All Persons (%)
Persons Not in the Labor Force	62,665	100.0
• Want a job now	6,503	10.4
Reason for Not Looking for Work:		
Ill health, disability	765	11.8
Home responsibilities	1,413	21.7
School attendance	1,608	24.7
Think cannot get a job		
• Economic reasons	1,248	19.2
• Personal reasons	394	6.1
Other Reasons	1,076	16.5

Source: U.S. Department of Labor, Bureau of Labor Statistics, Employment and Earnings, January 1984.

Those labor force non-participants expressing a desire for a job are asked in the CPS to indicate why they are not currently looking for work. The "discouraged workers" are those individuals who report that they are not actively looking for work because they do not believe that they can find work.[33] These individuals are further classified as discouraged for economic reasons (looked for work but could not find it, does not believe any work is available) or for personal reasons (employers believe they are too young or too old, lack education and skills demanded by employers).

Table 2-4 indicates that the most-frequently cited reason for not looking for work was discouragement, accounting for one-fourth of the respondents. School attendance (24.7%) was the second most-frequently cited answer, closely followed by home responsibilities (21.7%). The annual average number of "discouraged workers" during 1983 was 1.64 million persons. As noted above, however, the discouraged only accounted for one-fourth of the total number of non-participants desiring employment. While the discouraged do represent a substantial number of individuals, equal in magnitude to one-sixth of the total number of unemployed individuals, they are not synonymous with the labor force reserve. A substantial number of individuals, 6.7 million or 4 times the number of discouraged workers, are members of this labor force reserve. The entry of these potential workers into the labor force may be facilitated by human resource programs which offer a range of services including basic skills remediation, vocational training, job development and placement services, and supportive services, including child care and transportation.[34]

Labor Force Activity Measures

Data on the number of the persons in civilian noninstitutional population and their labor force status can be combined to produce a number of different measures of labor force activity and labor utilization. Definitions and formulas for three such measures are presented in Table 2-5 below. The first basic measure of labor force activity is the civilian labor force participation rate. The value of this measure is obtained by dividing the number of civilian labor force participants by the size of the civilian noninstitutional population. The civilian labor force participation rate represents the proportion of the civilian noninstitutional working-age population that is attached to the civilian labor force at any particular point in time, i.e., they are either working or actively looking for work. These rates can be calculated for any subgroup of the working-age population. Knowledge of the gaps in labor force participation rates between various subgroups, such as high school dropouts and graduates or whites and blacks, is critical to a proper understanding of the labor market problems of key target groups for human resource programs. Groups facing difficulties in obtaining jobs through their own job search efforts may become discouraged from seeking work and either withdraw from the labor force or not enter the labor force. If such withdrawals do occur or if labor force entries are postponed, they will be reflected in the group's participation rate.

Table 2-5
Definitions of Key Labor Force Activity Measures

Measure	Definition	Formula
Civilian Labor Force Participation Rate	The proportion of the civilian noninstitutional population that is actively participating in the civilian labor force; i.e., employed or unemployed.	Civilian Labor Force/Civilian Noninstitutional Population
Unemployment Rate	The proportion of the civilian labor force that is unemployed.	Unemployed/Civilian Labor Force
Employment/Population Ratio	The proportion of the civilian noninstitutional population that is employed.	Employed/Civilian Noninstitutional Population

The labor force activity measure most widely publicized in the national, state , and local media and used as a basic barometer of labor market conditions is the unemployment rate.[35] The value of the unemployment rate at any point in time is obtained by dividing the number of unemployed persons by the number of individuals actively participating in the civilian labor force. The formula for the unemployment rate does not take into consideration those individuals who are outside of the labor force. They do not appear in either the numerator or denominator of the unemployment rate formula. If slack labor market conditions discourage individuals from seeking employment, the unemployment rate will not rise to the same degree that it would have if such individuals had entered the labor force. Proper assessment of the impact of changing economic conditions upon labor force behavior and utilization requires an examination of trends in both labor force participation rates and unemployment rates.

The final labor force activity measure appearing in Table 2-5 is the employment/population ratio. This ratio is obtained by dividing the number of employed persons by the number of persons in the civilian noninstitutional population. The employment/population ratio depicts the share of the civilian noninstitutional population that is employed at any point in time or on average during a calendar year. This ratio came into prominence during the 1970's at the urgings of a number of economists and the late Commissioner of the Bureau of Labor Statistics, Julius Shiskin.[36] The value of the employment/population ratio for any subgroup of the working-age population is influenced by both the group's civilian labor force participation rate and its unemployment rate. The higher the participation rate and the lower the unemployment rate, the higher will be the employment/population ratio for that subgroup. Many of the employment and training programs administered for target groups under the Job Training Partnership Act and the 1984 Vocational Education Act are designed to increase the labor force attachment of the economically disadvantaged and to improve their employability. If these programs are successful in achieving their stated objectives, the employment/population ratios of the targeted population should increase.

To illustrate uses of the above labor force concepts and measures, population and labor force data from the 1983 Current Population Survey are presented in Table 2-6. The data in this table represent annual averages for calendar year 1983 and pertain to the noninstitutional population 16 or more years old.

During 1983, there were 175.9 million person (age 16 years and older) in the noninstitutional population of the United States. Of this total, approximately 1.68 million were members of the armed forces stationed in the U.S., leaving 174.2 million persons age 16 and older in the civilian noninstitutional population. Trends in the size and age composition of the civilian noninstitutional population have important consequences for the future growth of the civilian labor force. Growth of the overall working-age population of the nation has begun to slow in recent years. Rapid growth occurred during the late 1960's and the decade of the 1970's as the members of the post-World War II baby boom cohort came of working age. During the first half of the decade of the 1970's, the working-age population of the nation increased by 2.2% per year.[37] During the 1975-80 period, the annual average growth rate of the civilian noninstitutional population (age 16 years and older) was 1.9%. Over the past three years, the annual growth rate of the working-age population has slowed considerably, falling to less than 1.3% per year. The Bureau of the Census has projected an annual average growth rate in the working-age population of only 1.0% during the remainder of this decade.[38]

During 1983, the annual average number of labor force participants, including members of the armed forces, was 113.2 million. The annual average labor force participation rate of the nation during 1983 was 64.4%. This is the highest rate of labor force participation that the nation has achieved during the past 30 years.[39]

Table 2-6
Labor Force Status of the Noninstitutional Population Age 16 and Older
U.S.
Annual Averages, 1983

Group	Size of Group (in 1000's)
Total Noninstitutional Population (age 16+)	175,891
Civilian Noninstitutional Population (age 16+)	174,215
Resident Armed Forces	1,676
Total Labor Force	113,226
Civilian Labor Force	111,550
Total Civilian Employment	100,834
Total Civilian Unemployment	10,717

Labor Force Activity Measures	Rate (in %)
Total Labor Force Participation Rate	64.4
Unemployment Rate (including armed forces)	9.5
Civilian Labor Force Participation Rate	64.0
Unemployment Rate (civilian)	9.6
Employment/Population Ratio (civilian)	57.9

Source: U.S. Department of Labor, Bureau of Labor Statistics, Employment and Earnings, January 1984, "Table 1," p. 156; and "Table A-1," p.17.

The annual average number of individuals who participated in the civilian labor force during 1983 was 111.6 million people. This number of participants yielded an annual average civilian labor force participation rate of 64.0%. This overall participation rate was exactly equal to that prevailing in 1982, which established a new historical record for the post-World War II period.[40] The aggregate civilian labor force participation rate of the nation has been rising gradually since 1965, influenced to a major extent by the continuing influx of women into the labor force. The Bureau of Labor Statistics has projected a continued rise in the labor force participation rate of the nation throughout the remainder of this decade, with a projected participation rate of approximately 67.0% during 1990.[41] Women are projected to account for nearly two-thirds of net new labor force participants between 1982 and 1990.

The annual average number of unemployed individuals (age 16 years and older) during 1983 was 10.7 million. Since all of the resident members of the armed forces are counted as employed, the unemployment rate for the entire labor force will be slightly lower than that calculated from the civilian labor force.[42] For example, during 1983, the annual average unemployment rate for the labor force was 9.5% while that for the entire civilian labor force was 9.6%.

In interpreting unemployment data, it should be noted that the total number of different individuals experiencing a spell of unemployment during the year will be a multiple of the annual average number of unemployed persons.[43] Unemployed workers generally do not remain unemployed for the entire calendar year. Some of the unemployed will find jobs after brief periods of job search; some will be recalled to their previous jobs after being on layoff for several months; and others will withdraw from the labor force after an unsuccessful period of job search.

During the past decade, the total number of different individuals unemployed during a year has exceeded the annual average number of unemployed persons by a ratio ranging in value between 2.1 to 3.5.[44] For example, during calendar year 1982, the annual average number of unemployed workers was approximately 10.6 million; however, there were 21.7 million individuals who experienced at least one spell of unemployment during the year.[45] One-fifth of all white labor force participants and one-third of black labor force participants encountered a spell of unemployment during calendar year 1982.[46]

The annual average number of employed civilians (age 16 years and older) during 1983 was 100.8 million. The annual average employment/population ratio during 1983 was 57.9%. On average, during 1983, nearly 58 of every 100 persons in the working-age civilian population were employed. Knowledge of employment/population ratios for various subgroups of the population is particularly useful in identifying labor market problems of key target groups. For example, during 1983, the employment/population ratio of white youth 16-21 years of age was 52.7% while that for black youth in the same age group was only 26.2%.[47] The substantial size of this gap between the employment/population ratios of white and black youth provides a clear indication of the need to target human resource services to the minority youth population.

Earnings Behavior of the Population: Poverty and Other Income Inadequacy Concepts

A number of the nation's human resource programs, including Title II JTPA programs, WIN programs, and the Job Corps, are intended to combat and/or prevent income and earnings inadequacy problems. Problems of poverty and other forms of income inadequacy are attributable to a variety of causes. Individuals and their families can experience income inadequacy problems as a result of a limited degree of labor force participation, lengthy spells of unemployment during the year, an inability to secure full-time employment, or low hourly wages while employed.[48] Effective planning of such anti-poverty programs is dependent upon reliable information on the numbers, demographic and socioeconomic characteristics, and employment problems of persons experiencing various forms of income and/or earnings inadequacy. A number of different concepts and measures of income and earnings inadequacy have been developed over the years.

The real incomes of American families are critically influenced by the labor force behavior of family members. In particular, the annual incomes of American families are significantly influenced by the number of earners that they contain. Due to the continued rise in the participation rates of married women and the increased degree of participation by most teenagers over the past two decades, the number of earners per family has risen over time. During 1982, nearly 88% of all families in the U.S. had one or more members actively participating in the labor force.[49] As the data in Table 2-7 indicate, nearly 63% of those families with a member in the labor force had multiple (two or more) earners. Among married-couple families, one earner families achieved a median income of $21,141 during calendar year 1982 while similar families with two or more earners obtained a median income of $31,209. The future affluence of American families will be determined by the degree of labor force attachment of family members, their success in securing employment, and the real earnings from the jobs that they obtain.

Table 2-7
Distribution of All Families With a Member in the Labor Force and Median Incomes of Married-Couple Families By Number of Earners
U.S.
1982

Number of Earners	Percent of All Families (%)	Median Income of Married-Couple Families
Total	100.0	$27,917
None	1.6	7,160
One	35.6	21,411
Two or more	62.7	31,209

Source: Flaim, Paul O. "Unemployment in 1982: The Cost to Workers and Their Families," Monthly Labor Review, February 1984, p. 35.

1. Poverty Concepts

Our current poverty concepts and measures date back to the early 1960's when poverty was "rediscovered" in the United States and the federal government initiated an official War on Poverty in 1964 with the passage of the Economic Opportunity Act.[50] Preliminary efforts to measure the size and composition of the poverty population were made by President Kennedy's Council of Economic Advisers. These admittedly crude estimates were followed by a more systematic approach to the measurement of poverty by staff within the Social Security Administration under the leadership of Mollie Orshansky.[51] The official poverty measures were based to a major extent on Department of Agriculture estimates of the amount of income needed by families of varying sizes to purchase a bundle of food items that would meet nutrition requirements as outlined in the Department's Economy Food Plan.

Separate poverty thresholds (poverty lines) were calculated for different types of families to take account of variations in family size, the age distribution of children, the farm/non-farm residence of the family, and the age and sex of the family head.[52] Several revisions were made in the calculation of poverty thresholds in the early 1980's upon the recommendations of a federal advisory committee. Poverty thresholds today no longer distinguish farm from non-farm residences nor families headed by men from those headed by women.[53] The poverty thresholds are adjusted each year to take into account annual changes in the cost-of-living as reflected by the Consumer Price Index; however, the poverty thresholds do not take into consideration regional variations in the cost-of-living.

In determining the poverty status of a household or family, only the total money income of that family during the calendar year is taken into consideration. Total money income includes wages and salaries, income from self-employment, interest, dividends, rents, child support payments, social security benefits, private pensions, unemployment compensation, and public assistance income. These incomes are measured before payment of any federal, state or local taxes. Non-cash assistance received by households, such as medicaid and food stamps, is excluded from the estimates of total income. The weighted average poverty thresholds for families of varying sizes in the U.S. during 1983 appear in Table 2-8. The poverty thresholds ranged in value from $5,061 for one person households, to $10,178 for a four person family, to a maximum of $20,310 for families containing 9 or more persons.

Table 2-8
Weighted Average Poverty Thresholds by Size of Family
U.S.
1983

Number of Persons In Family	Poverty Threshold
One	$ 5,061
Two	6,483
Three	7,938
Four	10,178
Five	12,049
Six	13,630
Seven	15,500
Eight	17,170
Nine or more	20,310

Source: U.S. Department of Commerce, Bureau of the Census, Advance Report on the Poverty Population of the U.S., 1983, "Appendix A: Definitions and Explanations," page 31.

Given the poverty thresholds in Table 2-8 and data on household and family incomes from the March CPS Supplement, the Bureau of the Census provides annual estimates of the number of poor persons and families in the U.S. The poverty estimates for the nation for 1983 appear in Table 2-9 below.[54] During 1983, there were 35.3 million poor persons in the U.S. The incidence of poverty, which measures the percent of the population with incomes below the poverty line, was 15.2% during the past year. Whites accounted for 68% of all poor persons, blacks represented another 28%, and persons of Spanish origin made up 12% of the poverty population. The incidence of poverty among blacks was 3 times as high as that of whites, and Hispanics were 2.3 times as likely as whites to have incomes below the poverty line.

Table 2-9
Number and Distribution of Poor Persons by Race and Spanish Origin
U.S.
1983

Race or Spanish Origin	Number of Poor Persons (in 1000's)	Percent of Poor Persons (in %)	Incidence of Poverty (in %)
All	35,266	100.0	15.2
White	23,974	68.0	12.1
Black	9,885	28.0	35.7
Spanish Origin	4,249	12.0	28.4

Table 2-10 indicates that, during calendar year 1983, 7.6 million American families had incomes below the poverty line. Nearly 1 of every 8 families in the U.S.

was poor during 1983. One-half of all these poor families were married couples, whose incidence of poverty (7.6%) was well below the national average. Over time, families headed by women have accounted for a rising share of all poor families. During 1983, nearly 47% of all poor families were headed by a female householder, with no husband present. The incidence of poverty among these families was 36.0%, a rate of poverty nearly 5 times as high as that of married couples throughout the nation.

Table 2-10
Number and Distribution of Poor Families by Type of Family
U.S.
1983

Type of Family	Number of Poor Families	Percent of Poor Families	Incidence of Poverty
All Families	7,641	100.0	12.3
Married/Couple Families	3,820	50.0	7.6
Male householder, no wife present	264	3.5	13.0
Female householder, no husband present	3,557	46.5	36.0

Source: U.S. Bureau of the Census.

The incidence of poverty among families is also influenced by the degree of labor force participation of individual family members. Multiple earners have been shown to be a mechanism by which many families, particularly minorities, have been able to achieve incomes above the official poverty line.[55] The findings presented in Table 2-11 below indicate that multiple earner families in the U.S. were substantially less likely than other families to be poor during calendar year 1982. One-third of those families with no earners had incomes below the poverty line, and the incomes of nearly one-sixth of all one-earner families were below the poverty line. In comparison, fewer than 5% of all multiple earner families were poor, with the incidence of poverty falling with the number of earners.

Table 2-11
Incidence of Poverty Among Families by Number of Workers
U.S.
1982

Number of Workers	Percent of Families in Poverty (%)
Total	12.3
None	33.9
One	15.5
Two	5.0
Three	4.6
Four or more	2.8

Source: U.S. Department of Commerce, Bureau of the Census, Characteristics of the Population Below the Poverty Level: 1982, Series P-60, No. 14, "Table 25," pp. 100-101.

A summary of the actual work experiences of all poor persons (age 15 years and older) during calendar year 1983 is presented in Table 2-12 below. Of the nearly 23.5 million poor persons (15 years and older) in the U.S. during 1983, 9.44 million, or 40%, worked at some point during the year. Among those working, nearly one-third worked year-round (50-52 weeks), but failed to achieve earnings combined with other family income sufficiently high to raise their families above the poverty line. Approximately 3.7 million poor persons both worked and were unemployed during 1983. These unemployed individuals represented nearly one-sixth of the number of poor persons.

A high fraction of these unemployed poor persons were unemployed for 15 or more weeks throughout calendar year 1983. Findings of the March 1984 CPS revealed that all persons unemployed for 15 or more weeks during 1983 were nearly twice as likely to be poor as those unemployed for less than 15 weeks (24.8% vs. 13.8%). Approximately 60% of the poor did not work at all during 1983. This group includes 1.8 million persons who indicated that they did not work because they were unable to find work. Lack of active labor force participation characterizes a majority of the poverty population; however, a high fraction of this group of non-participants (30%) does express a desire for employment. Further reductions in the size of the poverty population will require removing barriers to more active labor force participation by members of poor families, particularly female family heads who have comprised an increasing share of all poor families, in the nation over time.[56]

Table 2-12
Work Experience of Poor Persons Age 15 and Older
U.S.
1983

Work Experience Status	Number of Persons	Percent of Total (%)
Total	23,465	100.0
Worked 1 or More Weeks	9,440	40.2
• Worked 50-52 weeks	3,074	13.1
• Worked and unemployed	3,670	15.6
• Unemployed less than 15 weeks	1,324	5.6
• Unemployed 15 or more weeks	2,346	10.0
Did Not Work	13,993	59.6
• Unable to find work	1,849	7.9

Source: U.S. Department of Commerce, Bureau of the Census, Advance Report on Characteristics of the Population Below the Poverty Line, 1983, "Table 17," p.26.

2. The Economically Disadvantaged: Concepts and Measures

In establishing participant eligibility criteria for a number of human resource programs during the past decade, the Congress has relied upon a second income inadequacy concept, the economically disadvantaged. In passing the 1978 CETA Amendments and the Job Training Partnership Act of 1982, the Congress continued to place primary emphasis upon the employment and training needs of the economically disadvantaged. For example, in order to participate in most Title II JTPA programs, an applicant must meet the criteria of being economically disadvantaged.[57] While this concept is closely related to the poverty concepts discussed above, it differs from the official poverty measures in a number of substantive ways.

The concept, economically disadvantaged, first appeared during the late 1960's when the former Manpower Administration (now the Employment and Training Administration) of the U.S. Department of Labor was developing participant eligibility criteria for a new job training program known as the NAB-JOBS programs. The NAB-JOBS program was a federal government/private sector partnership designed to provide on-the-job training in private sector firms to unemployed, low income persons.[58] To be eligible for participation, an individual had to be certified as economically disadvantaged by meeting the following criteria:

- a member of a poor household;
- unemployed or underemployed; and
- possess one or more of the following characteristics: under 22 years of age, over 45 years of age, a high school dropout, handicapped, or a member of a racial or ethnic minority group.

The economically disadvantaged concept was redefined in the late 1970's in response to Congressional requests for targeting public service job monies. Congress required a high portion of the public service jobs funded under the CETA legislation to be allocated to members of "low income" families.[59] A definition of "economically disadvantaged" was developed in response to that request. That definition was: a person living either in a household receiving cash public assistance or in a household whose total annualized income was less than either the official poverty line or 70% of the appropriate Bureau of Labor Statistics' lower living standard income level for the geographic area in which he or she resided. The income cutoff point of 70% of the lower living standard was a somewhat arbitrary one selected by the Congress to reflect its view of "income inadequacy".

The Bureau of Labor Statistics had been publishing annual estimates of the amount of income needed by families in various metropolitan and non-metropolitan areas of the nation to purchase various bundles of goods and services that would yield a lower, intermediate, and higher standard of living.[60] Unlike the offical poverty measures, the amount of income needed by a family of a given size to achieve any one of these living standards did vary somewhat from area to area as a result of differences in the composition of the goods and services to be purchased, state and local taxes, and prices of goods and services in the local economy.

3. Labor Market Hardship Concepts

To obtain a more comprehensive measure of labor market hardship that goes well beyond the official unemployment statistics, a number of researchers have attempted to develop measures of subemployment and employment inadequacy.[61] Among the more systematic and comprehensive approaches to this issue has been the work of Robert Taggart and Sar Levitan involving the development of an Index of Employment and

Earnings Inadequacy (EEI).[62] Early efforts to construct such an index involved an analysis of data on the labor force status of individuals at a point in time and their employment and earnings experiences in the prior calendar year. An example of the elements of such an index is presented in Table 2-13.

Initially, the EEI index focused on measuring the number of subemployed individuals who lived in households with below average incomes.[63] The subemployed included discouraged workers, unemployed, low-paid household heads who were fully employed in the prior calendar year, intermittently employed household heads earning an income less than the poverty level, and persons employed part-time involuntarily. The subemployed totals excluded all students 16-21 years of age and older persons 65 and over. The subjective judgement to exclude these two groups has been justified on the grounds that students are only marginally attached to the labor force and that the income needs of older persons should be met through income transfer systems rather than through the labor market. Finally, those subemployed individuals who lived in households with above average incomes are excluded. The final count of subemployed individuals living in households with below average incomes is considered to be those experiencing employment and earnings inadequacy. When this group is divided by the adjusted labor force, the value of the Index of Employment and Earnings Inadequacy is obtained.

More recent efforts to develop national labor market hardship measures have refined the analysis in a number of desirable directions, concentrating on calendar year employment and earnings experiences of individuals, providing alternative income and earnings thresholds for the measurement of hardship, and calculating separate hardship measures for individual workers and households.[64]

Basic Differences in the Measures of Poverty, Economically Disadvantaged, and Labor Market Hardship

Given variations in the definitions of poverty and economically disadvantaged concepts, estimates of the size of the poverty, "low income," and economically disadvantaged populations will differ somewhat from one another. To illustrate the likely sizes of such differences, estimates of each of these populations, based on income data from the CPS, are presented in Table 2-14.

The estimated number of poor persons (age 16 years and older) in the civilian non-institutional population of the U.S. during 1980 was 20.9 million, representing 12.8% of the population in this age group. The number of "low income" persons, i.e., persons in households with annualized incomes below either the OMB poverty line or 70% of the BLS lower living standard income level, was approximately 23.4 million. This estimate is 2.4 million higher than that of the total number of poor persons. This result occurs due to the fact that the household income equivalent to 70% of the lower living standard is one to two thousand dollars above that of the poverty line in many major metropolitan areas of the Northeast, Industrial Midwest, and West. For example, the OMB poverty line for a nonfarm family of four was $8,414 in 1980. In the Boston metropolitan area, 70% of the BLS lower living standard income level was equivalent to approximately $10,500 for a family of four persons during that year. Thus, the number of persons living in families with incomes below 70% of the lower living standard will exceed the number of poor persons in the U.S.

The estimated number of economically disadvantaged persons in the U.S. during 1980 was 27.3 million.[65] This total is nearly 4 million above the number of "low income" persons. This is due to the fact that the economically disadvantaged include all recipients of cash public assistance, regardless of their income level, and that certain types of income, including child support payments, unemployment compensation, and public assistance income, are not included in the total money income of a household in determining whether it is economically disadvantaged.[66] The economically disadvantaged in the U.S., thus, represent a substantially larger group of individuals than the poverty population, containing 30% more working-age individuals during 1980.

Table 2-13
Derivation of Employment and Earnings Inadequacy Index
U.S.
March, 1972
(in 1000's)

	Number of Subemployed (in 1000's)	Persons In Households with Above Average Income (in 1000's)	Employment and Earnings Inadequacy (in 1000's)
Labor Force (CPS)	85,398		
+ Net discouraged workers	+ 724		
Adjusted labor force	86,122		86,122
Adjusted unemployed	4,235	- 1,504	2,731
+ Net discouraged workers	+ 724	- 182	542
+ Low-paid fully employed workers	+ 2,335	- 257	2,078
+ Other low earnings heads	+ 3,682	- 204	3,478
+ Involuntary part-time workers	+ 1,894	- 781	1,113
Total subemployed with inadequate employment/earnings	12,870	- 2,298	9,942
Subemployed and inadequately employed as a percent of adjusted labor force	14.9%		11.5%

Source: Levitan, Sar A. and Taggart, Robert, "Employment and Earnings Inadequacy: A Measure of Welfare," Monthly Labor Review, October 1973, pages 19-27.

Table 2-14
Number of Persons (Age 16+) in Households with Incomes at or Below Selected Adequacy Thresholds
U.S.
1980

Adequacy Threshold	Number of Persons (16+) (in 1000's)	Percent of of All Persons (16+) (%)
OMB Poverty Line	20,939	12.8
OMB Poverty Line or 70% of the BLS Lower Living Standard Income Level	23,369	14.3
Economically Disadvantaged	27,270	16.7

Source: University of Michigan and Wayne State University, "National CETA Eligibility Estimates," report prepared for U.S. Department of Labor, Employment and Training Administration, Washington, D.C.

Finally, it should be noted that the labor market hardship concepts are not identical to the concepts of poverty or the economically disadvantaged. The measures of the poor and economically disadvantaged population are based solely on the annual incomes and/or sources of incomes of households, i.e., their receipt of cash public assistance income. Hardship measures typically concern themselves with individuals who are attached to the labor force for some period of time during the year, but who are unable by themselves or with other household members to achieve some minimum adequacy standard. This adequacy standard can be set at the official poverty line or some multiple of it.

A careful review of the elements of the EEI index shows clearly that the unemployed population and the number of individuals experiencing employment and earnings inadequacy are quite different in size and composition. Only 52% of the unemployed during March of 1972 were members of households experiencing employment and earnings inadequacy, and only 28% of the total number of individuals experiencing employment and earnings inadequacy were unemployed individuals.

While the poverty and labor market hardship concepts are not identical, there will be a major overlap between them. The measures of subemployment and employment and earnings inadequacy reveal that the unemployment statistics by themselves do not provide an adequate measure of the level or nature of economic hardship experienced by members of the labor force. Labor market hardship indices, since they provide a more comprehensive understanding of the magnitude and nature of earnings inadequacy problems of state and local residents, are tools which could be useful in program planning.

Occupational Behavior of the Population: Occupational Supply Concepts

The previsous discussions of labor force concepts did not take into consideration the occupations of the job held by the employed or those being sought by the unemployed. Human resource program planners need to take into consideration the current and future occupational supply of persons from a variety of sources. Occupational supply may be defined as the number of workers in a specific labor market that are currently available and qualified to fill jobs in an occupation. The current supply of workers is equal to the number of workers already employed in the occupation plus the number of unemployed persons qualified for and seeking work in the occupation. Additions to occupational supply can come from several sources, including those who are currently unemployed; thoses who complete and/or leave education and training programs; those who transfer between occupations; those who migrate into a geographic area; and those who newly enter or re-enter an occupation. Table 2-15 provides a listing of the alternative sources of supply of workers for an occupation.

The occupational supply sources are extraordinarily diverse. The contribution of the various supply sources to the flow of new entrants will vary substantially by occupation. A number of efforts to model flows of new entrants from each of these sources have been undertaken for individual occupations, but no comprehensive tracking system for all occupations currently exists at the national or state level.[67] Many of the new entrants into professional and technical occupations, such as, accountants, registered nurses, and electrical engineers, are recent graduates of education institutions. Other occupations, including many blue collar operatives are trained more informally on-the job.

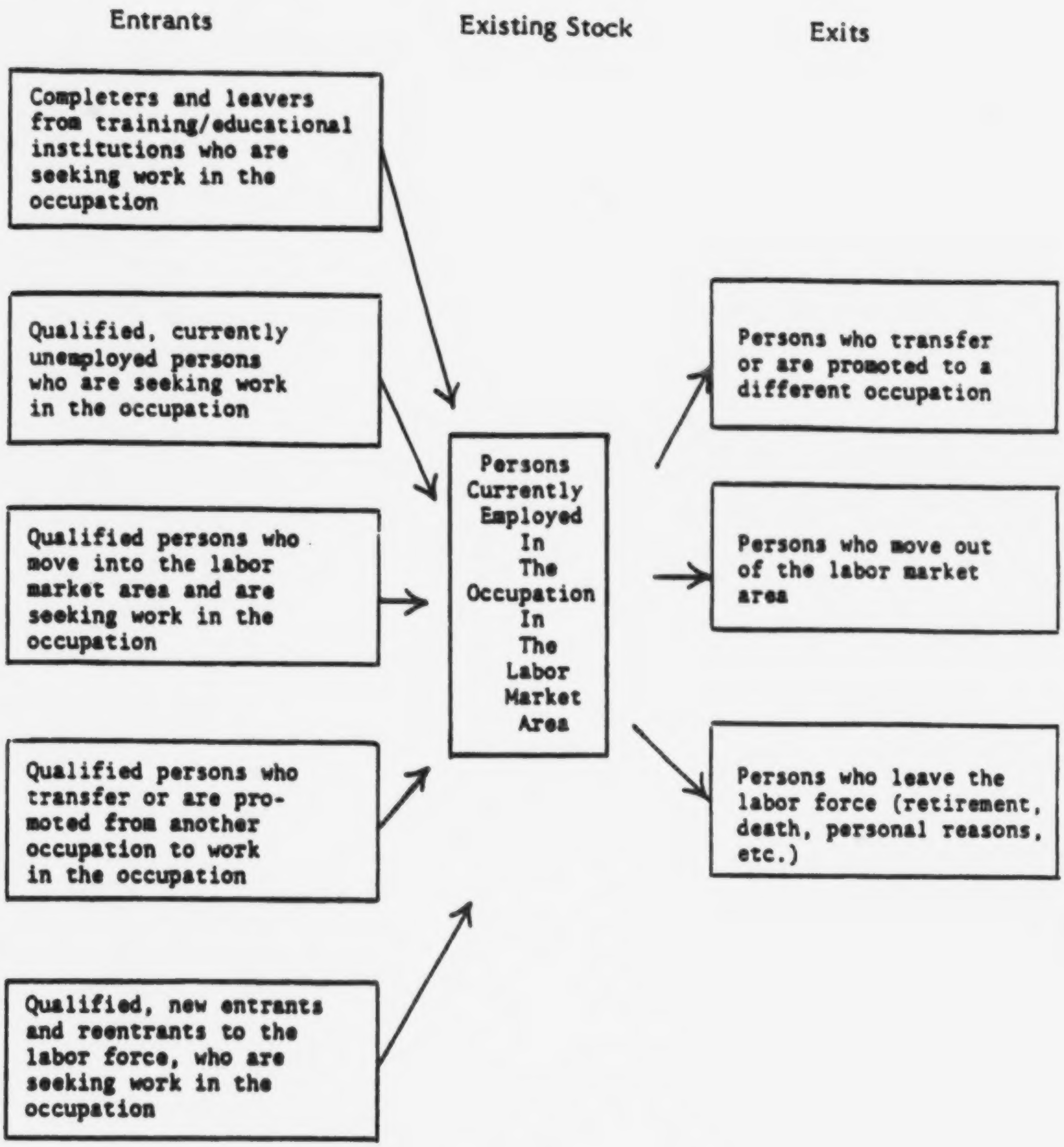
Colleges, universities, public and private vocational/technical schools, high schools, and other training/educational institutions contribute to the supply of qualified individuals seeking employment in a specific occupation. In addition, about one out of eight workers in the United States is given formal training by employers each year. Most employer supported training occurs within the workplace, but some occurs in colleges or other schools, in professional organizations, or in other outside institutions. The training provided may be useful only in the employer's organization (specific training) at the financial expense of the employer or it may be useful in other companies or organizations as well (general training) which is usually financed at the expense of the employee.

Empirical research indicates that there is a considerable amount of movement of workers among occupations. The findings suggest that the supply of workers in most occupations--even those requiring fairly substantial qualifications--is somewhat flexible, and, if wages rise, people can be drawn from other occupations. Job vacancies may be filled by persons with a variety of occupational specialties. Occupational transfers or mobility include those people who change occupations by moving up career ladders within a company or industry into new occupational categories or make radical career shifts (e.g., teachers become computer programmers).

Some people will move from one occupation to another over their working lives in the internal labor markets of establishments.[68] Knowledge of the operations of these internal labor markets is important for human resource planning. The internal labor markets not only provide a substantial amount of the training received by workers, but many of the projected job openings for occupations will only be available to incumbents in existing establishments. Newly-hired workers will obtain their jobs at ports of entry into these firms and move vertically over time into higher level positions depending upon the structure of the firm's internal labor market.

The supply of workers for a given occupation in a local labor market also will be affected by the migration of workers into and out of the labor market. Net migration data ideally would be developed on a national, state, and local labor market area basis. Planners need these data to estimate the extent to which current and future occupational demand will be satisfied by workers who move into an area; however, comprehensive data on geographic mobility by occupation are not currently available.

Table 2-15
Overview of Changes in Labor Supply for
A Specific Occupation


Entrants
Existing Stock
Exits
Completers and leavers from training/educational institutions who are seeking work in the occupation
Qualified, currently unemployed persons who are seeking work in the occupation
Qualified persons who move into the labor market area and are seeking work in the occupation
Qualified persons who transfer or are promoted from another occupation to work in the occupation
Qualified, new entrants and reentrants to the labor force, who are seeking work in the occupation
Persons Currently Employed In The Occupation In The Labor Market Area
Persons who transfer or are promoted to a different occupation
Persons who move out of the labor market area
Persons who leave the labor force (retirement, death, personal reasons, etc.)

Source: NOICC, OIS Handbook, 1981.

New entrants into an occupation may also come from movement into the labor force. Common examples include a woman returning to the labor force after child rearing, a person completing military service, a displaced homemaker needing to re-enter the labor force to earn an income, and a person who has been released from a prison or hospital.

Projected supply may be defined as the number of workers expected to be available and qualified to work in an occupation at some future date, measured as the current supply plus the new entrants minus labor force separations. Projecting the future supply of workers by occupation is an extraordinarily complicated undertaking since it would entail estimating both the number of currently employed workers who will remain in the occupation in a given future year (retentions) and the number of new entrants into an occupation over time. Projected separations from an occupation can be subtracted from base year employment in that occupation to provide an estimate of retentions in any future year. Projecting new entrants is far more complex due to the fact that additions to the supply of labor in an occupation can come from the various sources described above.[69]

Several factors impact on the current and potential supply of workers. For example, demographic trends will affect the future supply of labor for occupations. The baby boom generation, which includes a greater number of people who have been entering the prime working age group, will increase the number of workers competing for jobs in various occupations. A factor affecting the current supply of workers to an occupation is the availability of jobs in other occupations. When jobs are relatively easy to get, the number of workers willing to work in a particular occupation at a given wage will be less than when slack labor market conditions exist and this is the only job available. This is especially applicable to occupations that have no specific training, education, or experience requirements for entry into the occupation, but is also true of higher level occupations in the professional and managerial areas as well as a smaller number of occupations that do have limitations to entry. The generally high levels of formal education of participants in the labor force (about 1 out of 4 young people finish 4 years of college education today and most college graduates have minor as well as major course concentrations) partially accounts for people being qualified for employment in a number of different occupations.

Employers in the Labor Market: Industry and Occupational Employment Concepts

In addition to the information on the labor force behavior and employment problems of residents, the planning of employment-oriented education and training programs is also dependent upon information on the current and projected structure of job opportunities by industry and occupation in national, state, and local economies. Knowledge of the specific industries and firms that employ workers, the occupational structure of the jobs within these industries, the skill requirements of these jobs, and access paths to such jobs is critical to the planning and design of human resource programs. Career guidance and counseling activities are also dependent upon such information to provide insights into the types of jobs held by workers, the nature of the job duties performed, and the skills and abilities required to perform job duties in an effective manner on the job.

Demand for workers by firm in an industry will be influenced by the demand for the goods and services they produce and the technologies that they employ in the production process. Future employment opportunities in an industry will depend partly on the growth in demand for the products or services that the industry provides, changes in the technology used to produce such goods, and the cost of labor relative to other factors of production. If demand for the product or service is expected to increase, the firm may want to hire more of each kind of worker currently used in its production process. In some cases a plant may substitute less skilled workers if there is a short supply of workers in the higher level occupation in the community. The degree of such labor substitution will depend on several factors, including technology, hiring flexibility, and the wages offered for different types of labor.

Workers in the U.S. are employed in a diverse set of industries and occupations. For example, during 1983, nearly 90.0 million employees (age 16 years and older) were at work in the American economy on the payrolls of firms producing an extraordinarily diverse set of goods and services.[70] These workers used a wide range of skills, abilities, and production techniques to generate the aggregate level and composition of output demanded by domestic consumers, investors, government agencies, and foreign nations. In order to understand the way in which the economy uses workers to produce this array of outputs, social scientists have devised a number of different systems for classifying or categorizing employment. The two most basic methods of categorizing employment involve sorting jobs on the basis of industries or the places where people work and by occupations or the tasks that workers do.

1. Industry Employment Concepts

The employment structure of a specific geographic area at a specific time describes the number and types of jobs filled and available and the establishments in which the jobs are found. Industry employment totals, except those for the federal government, refer to persons on establishment payrolls who received pay for any part of the pay period which includes the 12th of the month. For federal government establishments, employment figures represent the number of persons who occupied positions on the last day of the calendar month. Intermittent workers are counted if they performed any service during the month.

Industry employment excludes proprietors, the self-employed, unpaid volunteer or family workers, farm workers, and domestic workers in households. Salaried officers of corporations are included. Government employment covers only civilian employees. Military personnel are excluded as are employees of the Central Intelligence and National Security Agencies.

Persons on establishment payrolls who are on paid sick leave (when pay is received directly from the firm), on paid holiday, on paid vacation, or who work during a part of the pay period even though they are unemployed or on strike during the rest of the period are counted as employed. Not counted as employed are persons who are on layoff, on leave without pay, on strike for the entire period, or who were hired but have not yet reported during the period.

Most industry employment data are collected through establishment surveys or payroll reports which provide current information on wage and salary employment, hours, and earnings in nonagricultural establishments by industry and geographic location. These "place of work" data are not directly comparable with household data or "place of residence" data such as those collected from the Census and CPS. The place of work employment estimate must be adjusted to refer to place of residence estimates. Factors for adjusting from place of work to place of residence have been developed for such categories of employment as self-employed, unpaid family, farm, and domestic workers on the basis of employment relationships which existed at the time of the 1970 decennial census. The factors are applied to the payroll employment estimates for the current time period to obtain adjusted employment estimates.

An employer or firm is a legal entity which either pays unemployment insurance tax or reimburses the state for UI benefit costs. In some cases, an employer is equivalent to an establishment while in others an employer will include several establishments. For example, a company may have all of its production facilities in the same geographic location; or, as is true of large firms, multiple establishments containing branch plants, warehouses, central offices, and research laboratories may be located in different sites across the country. These different establishments may or may not engage in the same line of business.

An establishment is an economic unit, such as a farm, mine, factory, or store, which produces goods or provides services. Establishments are classified by ownership according to legal proprietorship rather than by type of economic activity. The classifications include federal, state, local or international government, and private industry. An establishment is usually at a single physical location and engaged in one or predominantly one type of economic activity for which a Standard Industrial Classification (SIC) Code is applicable. Where a single physical location encompasses two or more distinct and separate economic activities for which different SIC codes seem applicable, the activities are treated as separate establishments and classified in separate industries. For example, the American Express Company may own a travel services agency in addition to the typical credit card service it provides. These different service activities located in different sites would be classified in different industry groups. In 1984, there were about 5 million companies or firms in the U.S. and about 8 million establishments.

In addition to working for existing firms and public sector agencies as wage and salary employees, workers can also create their own jobs by going into business for themselves. This requires an occupational skill, business or entrepreneurial skills, capital to invest or the ability to borrow it, and willingness to take responsibility and risk. One out of every 12 employed persons in the U.S. during 1982 was self-employed. Construction, retail trade, business services, and professional services are the main industries for self-employment.

To economists, industries are groups of firms that engage in the production and distribution of homogeneous products and services within the same market. The SIC coding system of the Office of Management and Budget is based on this approach and contains definitions for industries based upon the products or services produced. Increasingly narrower ranges of products or services are used to distinguish industries from one another at increasing levels of detail. Industrial classification systems are thus based on hierarchies of products and services categorized by increasing levels of detail.

To illustrate industry classification procedures, national data from the Current Employment Statistics program, a monthly establishment survey conducted by BLS cooperatively with the states, are shown in Table 2-16. The data indicate that about 18.7 million wage and salary jobs were located in the manufacturing sector, including 10.9 million jobs in firms that produced durable goods. Data within the table further indicate that the jobs in the manufacturing sector accounted for slightly more than 20% of all wage and salary jobs in the nonagricultural sector of the economy during that year. Within the durable goods manufacturing sector, 1.8 million wage and salary jobs were engaged in the production of transportation equipment. Of these, approximately 773,000 jobs were in motor vehicle manufacturing, 580,000 in aircraft production, and 199,000 in boat and ship building. The remaining 233,000 jobs were in other types of transportation equipment producing firms (bicycles, trains, tanks).

Employment data appearing in Table 2-16 also depict the industrial structure of wage and salary employment in the nonagricultural sector of the U.S. economy during 1983. This table shows the SIC grouping of jobs into the major sectors of the economy in which they are engaged.[71] This table represents a count of wage and salary jobs. It provides a concise summary of how many wage and salary workers are used by various sectors of the American economy during 1983. Unlike the CPS household survey, persons holding two or more wage and salary jobs will be counted twice.

Industry classification systems, thus, provide a conceptual framework for disaggregating employment data into increasingly specific types of economic activity. With such information, labor market analysts and human resource program planners can begin to identify the job structure of local, state, and national economies at any point in time and trace changes in that structure over time. Knowledge of the specific types of jobs held by workers is also critical to the planning process.

Table 2-16
Number of Employees on Nonagricultural Payrolls, by Major Industrial Sector
U.S.
Annual Averages, 1983

SIC	Industry Sector	Annual Average Number of Employees (in 1000's)	Share of Total Payroll Employment (in %)
	Total Wage and Salary Employment	89,978	100.0
	Mining	1,021	1.1
	Construction	3,947	4.4
	Manufacturing	18,678	20.8
	Durable Goods	10,932	
37	Transportation Equipment	1,785	
371	Motor Vehicle and Equipment	733	
372	Aircraft and Parts		580
373	Ship and Boat Repairing	199	
374-379	Other Transportation Equipment	233	
	Transportation, Communication, Utilities	4,941	5.5
	Wholesale Trade	5,232	5.8
	Retail Trade	15,281	17.0
	Finance, Insurance, and Real Estate	5,454	6.1
	Services	19,680	21.9
	Government	15,744	17.5

Source: U.S. Department of Labor, Bureau of Labor Statistics, Employment and Earnings, March 1984, "Table B-1," p.47, and "Table B-2," pp. 48-51.

2. Occupational Employment Concepts

While knowledge of the industrial structure of employment in a state or local economy is important for labor market analysis and human resource planning, the design of employment-oriented education and training programs must be based upon information on the types of jobs performed by workers in state and local industries. Data on occupational employment is needed to provide insights into the types of jobs held by workers, the nature of the job duties performed, and the skills and abilities required to perform in an effective manner.

Jobs differ in the skills required and not all jobs are available to all potential workers. Groups of jobs that require approximately the same body of skills are identified as occupations. The existence of specialized occupations is sometimes further reinforced by a variety of barriers that have been erected to keep unqualified workers out. These may include licensing, registration or certification, apprenticeship and union hiring requirements. The exact tasks performed and skills used are not always identical for all jobs that fall into one occupation; however, they are believed to be similar enough so that a worker who can perform one job adequately can quickly learn to perform another job in the same occupation either in the same or a different establishment.

A number of different occupational classification systems with different structures have been developed to meet the needs of different user groups. These are described in greater detail in Chapter 3. Efforts by the National Occupational Information Coordinating Committee (NOICC) to develop crosswalks for the different occupational codes has facilitated the use of occupational information over the past several years.

The occupational employment data contained in Table 2-17 below provide insight into the occupational structure of employment in the U.S. economy during 1982. These data represent estimates of the number of workers employed in broad occupational categories performing tasks associated with specific job titles. For example, the data in Table 2-17 show that slightly over 16% of all workers in the U.S. were engaged in professional or technical jobs. Similarly, 18% of all workers in the U.S. economy were employed in clerical jobs.

Table 2-17
Occupational Structure of Employment
United States
1982

Occupation	Number of Workers (in 1000's)	Percent of Total (%)
Total	**101,510**	**100.0**
Professional, Technical, and Related Workers	16,584	16.5
Managers, Officials, and Proprietors	9,532	9.5
Sales Workers	6,967	6.7
Clerical Workers	19,049	18.4
Craft and Related Workers	11,591	11.5
Operatives	12,995	12.9
Service Workers	16,241	16.1
Laborers, except Farm	5,861	5.8
Farmers and Farm Workers	2,691	2.7

Source: U.S. Department of Labor, Bureau of Labor Statistics. "National OES Industry/Occupation Matrix."

Each industry employs workers in a typical set of occupations referred to as the occupational mix or staffing pattern. The staffing patterns of establishments in an industry may differ somewhat from one another. The mix of jobs available in different industries will frequently vary considerably, based on a number of factors, especially technology. For example, a steel mill employs workers in quite different occupations than a pizza parlor. An insurance company and an automobile factory may both employ clerical workers; however, clerical workers will form a higher proportion of the insurance company's employment level. Craft and production workers will form the bulk of employees in the automobile factory.

The occupational staffing pattern of an industry provides a description of the distribution of workers by occupation within the industry. For example, occupational staffing pattern data for the electrical machinery industry would indicate how many of the workers in the industry were employed as electrical engineers, electronic technicians, assemblers, etc. Occupational staffing patterns of industries can, thus, provide valuable information on the intensity with which different industries utilize workers in given occupations. Such information can be used in a practical manner by human resource agencies to design effective job development and placement strategies, to market on-the-job training contracts, to provide training to participants in job search programs, and to assist in the development of curriculum materials for world of work training courses.[72] Job developers should be informed of the industries that are most likely to employ workers in occupations for which classroom training is being provided, and job seekers should be guided in their job search efforts to secure employment in an occupation of their choosing.

Data on the occupational staffing patterns of all industries can be combined to construct an industry/occupation matrix. This matrix is a rectangular array of numbers representing data on the distribution of employment by occupation in each industry in a national, state, or local economy. A simplified example of such an industry/occupation matrix is presented in Table 2-18. The data appearing in this table were derived from the national industry/occupation matrix for the United States for the year 1980. For illustration purposes, the matrix is collapsed into nine major industry sectors and nine major occupational employment groups. The data appearing in this table can be used to generate information on the occupational staffing patterns of each industrial sector. For example, the construction sector employed nearly 4.5 million persons during 1980. Professional and technical workers accounted for 209,000 of these employees, or 4.7% of total employment in this sector. Craft workers was the largest occupational group employed in the construction sector, representing nearly 52% of the total number of construction employees. Similar analyses can be carried out for each of the other sectors appearing in this table.

The data on occupational staffing patterns in Table 2-18 can be converted into a matrix of industry-occupation coefficients. Each coefficient in this matrix depicts the share of total employment in an industry that is accounted for by workers in a given occupation or occupational group. For example, as the above discussion revealed, the coefficient for craft workers in the construction sector would be equal to .517, indicating that of every 100 workers in the construction sector nearly 52 were employed in craft-related occupations.[73]

The existing industry/occupation matrices for the U.S. and for individual states contain a substantially greater amount of detail than that appearing in the simplified matrix in Table 2-18. The existing national matrix contains staffing pattern data on 1,500 individual occupations in over 400 industries in the national economy.[74] The industry/occupation matrix is not only useful as a tool for analyzing the job structure of economies and for planning human resource programs, but it also serves as a fundamental input into all occupational employment projections for the nation, individual states, and substate areas.

Table 2-18
Total Employed by Industry and Occupation
U.S.
1980

Industrial Sector

Occupational Group	Agriculitre, Forestry Fishing	Mining	Construction	Manufacturing	Transportation Communications, Utilities	Trade	Finance Insurance & Real Estate	Services	Government	Total, All Industries
Professional, Technical Kindred	44	110	209	1,844	431	773	477	9,279	1,804	14,971
Managers	22	73	419	1,196	520	1,926	877	1,800	724	7,557
Sales Workers	12	5	47	437	128	4,432	481	274	25	5,841
Clerical	48	107	321	2,297	1,933	4,235	2,739	4,994	1,847	18,521
Craft Workers	61	243	2,313	3,768	1,102	1,381	155	986	1,003	11,012
Operatives	47	397	219	8,845	1,094	1,843	11	957	336	13,749
Service Workers	10	12	42	397	158	4,733	327	7,389	1,644	14,712
Laborers	204	76	900	1,577	451	1,249	95	541	498	5,591
Farm Labor	951	0	0	0	0	0	0	0	0	951
Total	1,399	1,024	4,469	20,362	5,817	20,573	5,162	26,220	7,881	92,907

Source: 1980 Census

3. Current and Future Employment Outlook Measures

Obtaining timely and detailed information on the structure of existing jobs by industry and occupation is a critical first step in conducting an analysis of a state or local labor market. Knowledge of the number and types of transactions taking place in the labor market during the year and in future years also would be highly desirable. Labor markets are not the static institutions frequently portrayed in supply-demand diagrams in economic textbooks or described in the monthly employment statistics. Dynamic movement of workers into and out of jobs takes place on a continual basis throughout the year. Information on the degree and nature of such movement, particularly that involving new hires, would be helpful in targeting job development and placement activities.

Occupational employment change is created by technological, social, and economic factors. Social changes, such as more women entering the labor force, create demand for child care workers, labor-saving appliances in the home, and restaurant workers. The demand for different occupations may also change over time as the technology or the structure of the industry changes. For example, fewer weavers are used in modern textile mills than are used in the production process of older textile mills. This is due to the fact that the machinery rarely breaks down or requires attention and the fact that one weaver can tend many looms. Changing demands for goods and services will also influence the occupational employment structure. As the demand for the products of fast food restaurants increases relative to that for other restaurants, the demand for short order cooks and counter workers will expand more rapidly than that for skilled chefs and cooks and waiters in other restaurants.

Technological changes, not only create demands for new types of workers, but also reduce demand for workers' other occupations. There has been a recurrent fear that the technological change which substitutes machines for human workers (automation, robotics, etc.) will create mass unemployment. Technological innovation has threatened jobs for workers first in one industry then in another over the past two centuries. Yet, the total number of people with jobs has grown. This process of job creation in the midst of job destruction works in several ways. First, when new labor-saving technology is introduced and reduces production costs, the price of the product goes down and consumers buy more, thus creating jobs for more workers. Higher output per worker in such industries makes higher wages possible. The lower production costs and prices make it possible for American industry to compete more effectively in world markets. Second, new jobs are created in making the new machinery. These jobs frequently are in different industries, requiring different and often higher skills. When jobs at higher skills are created, this tends to raise average wages. Third, as income rises, consumers spend more on durable manufacturing products and services such as stereo equipment, travel, entertainment, education, medical care, and sporting and recreational goods, thus creating jobs in different industries.

Technological innovation does not so much destroy jobs, but rather, creates different jobs and helps to explain employment growth of service-producing industries, such as finance, trade, hotels, schools, hospitals, entertainment, and recreation. Technological changes such as those associated with the introduction of the computer, create demand for people who build or use the new equipment. In the 1920's, service industries provided fewer jobs than goods-producing industries such as farming, mining, construction, and manufacturing. Today, service industries provide jobs for twice as many workers as the goods-producing industries. This does not mean that the goods-producing industries are dying out. In absolute terms, they had more workers than ever before in 1980, with further increases expected over the next 15 years.

The boundaries of highly specialized occupations keep changing as the technology and organization of work changes. In engineering and medicine, for example, it becomes difficult for an individual to be familiar with all new technologies and latest research findings and to be able to perform jobs without additional training. So new and different specializations arise and eventually become separate occupations with their own training programs and access paths.

Hiring transactions are also affected by the manner in which the firm recruits its employees. Some firms fill jobs at all levels by hiring from the outside, or the "external" labor market. However, larger organizations are more likely to maintain "internal labor markets," in which the company hires new workers from the outside only in certain entry level jobs (or ports of entry). Forty-two percent of all employees in private firms were in large establishments containing 1,000 or more employees in 1977, and, when government agencies are considered, the number of employees in large establishments comprise more than half of all workers. Most jobs in such organizations are filled by promotion which is controlled by formal procedures such as posting of vacancies, bidding for jobs, and consideration of seniority in promotions and layoffs. Formal procedures are typical in plants where hiring and promotion practices are governed by collective-bargaining agreements to improve promotion chances for incumbents; however, they are also followed in some nonunion plants. Internal training is often provided so that workers can advance vertically and pursue a lifetime career within the company. At the same time it must be recognized that 40% of all employees in private firms were in organizations of less than 100 employees, where internal labor markets are less common.

Whether an organization does or does not maintain an internal labor market is not only a matter of its size, but also of the types of workers it employs. An example of a large organization that depends mostly on hiring from the outside and offers relatively little upward mobility is hospitals. Hospitals hire their specialized workers, such as professional nurses, pharmacists, physicians, X-ray technicians, physical therapists, medical records librarians, and so forth from the outside or external labor market. There is virtually no internal movement among these occupations within the organization. The electrical machinery, steel, and petroleum refining industries however, are major examples of industries that do operate internal labor markets. In a steel company, for example, the major internal labor market comprises all of the blue-collar production workers; however, engineers, accountants, typists, and many office workers are hired from the outside in the general labor markets for those occupations.

Knowledge of the operations of these internal labor markets is important for human resource planning. The internal labor markets not only provide a substantial amount of the training received by workers, but many of the projected job openings for occupations will only be available to incumbents in existing establishments. Newly-hired workers will obtain their jobs at ports of entry into these firms and move vertically over time into higher level positions, depending upon the structure of the firm's internal labor market.[75]

- Labor Turnover

The term labor turnover refers to the gross flow or movement of workers among jobs that occur in an economy over a discrete period of time, such as a calendar month or year.[76] Every month, several million workers in the U.S. leave their jobs either voluntarily or involuntarily. Simultaneously, a similarly large number of workers are hired by employers to fill vacant positions. The volume of these transactions is rather substantial. For example, a recent study by the Bureau of Labor Statistics revealed that nearly 30% of all persons employed in January 1981 had held their current jobs for less than one year.[77]

Workers leaving their jobs or "separating" from their employers do so for a number of different reasons. Separations will include voluntary quits, temporary or permanent layoffs, firings, retirements, and deaths. The total number of persons leaving their jobs during a month is usually referred to as total separations.[78] A separation rate can also be calculated. The separation rate measures the number of job leavers per 100 workers employed during a given time period. For example, if the level of employment within a firm is 100 and if 5 workers separate from the firm over the month, then the separation rate for this month would be 5.0. Similarly, if three of these five workers left the firm voluntarily (to take a job with another firm, return to school), then the quit rate for the month would be 3.0.

The concept accessions refers to the total number of workers added to the payroll of an establishment during a given period of time. Firms can add employees either by recalling workers who previously had been laid off or by hiring new employees. Data on accessions and employment can be combined to calculate accession rates, new hire rates, and recall rates. The total accession rate refers to the number of such accessions that occur over a given time period per 100 employees. Accession rates have frequently been calculated on a monthly basis.

Data on labor turnover often have been used as indicators of the cyclical behavior of the national or state economy. Additionally, labor turnover statistics, particularly accessions data, have been used to identify those industries in a state or local economy characterized by a high job placement potential.[79] Several different data bases historically have been used to measure labor turnover at the national, state, and local levels. One of these methods was an establishment-based survey method no longer in existence, while the other two methods have relied on administrative data sources, including Social Security and unemployment insurance records.

Findings, based upon administrative records data and the Social Security Administration's earnings records have revealed that labor turnover in the U.S. economy appears to have been much higher than that previously suggested by establishment-based turnover surveys.[80] For example, the new hire rate in the nonagricultural private sector of the U.S. economy during the second quarter of calendar year 1974 was estimated to be 25.0, equivalent to 25 new hires per 100 employed persons during this one quarter.[81] The new hire rate varied considerably by sector, ranging from lows of 15.3 in transportation and public utilities and 16.2 in manufacturing to a high of 50.5 in construction. (See Table 2-19 below.)

Table 2-19
New Hire Rates of Selected Industries in the Nonagricultural Sector
U.S.
Second Quarter, 1974

Industry	New Hire Rate
Total Nonagricultural Wage and Salary	25.0
Mining	22.8
Construction	50.0
Manufacturing	16.2
Transportation and Utilities	15.3
Wholesale Trade	18.8
Retail Trade	33.8
Finance	18.5
Services	27.7

Source: Malcolm S. Cohen and Arthur R. Schwartz, "U.S. Labor Turnover: Analysis of a New Measure," Monthly Labor Review, November 1980, pages 9-13.

- Job Vacancies

At any point in time, a number of employers in the economy will find themselves with a level of employment less than that currently desired; i.e., they will experience unfilled job openings or vacancies due to time lags involved in filling job openings generated by worker turnover and expansion of output. These job vacancies can be considered as a measure of unmet labor demand, i.e., at the prevailing wage they wish to hire more workers than they currently have on board. Knowledge of the total number of such vacancies, their industrial and occupational characteristics, and their locations has frequently been viewed as highly desirable for economic policymaking and for the planning, design, and operation of human resource programs at the state and local levels.[82] For example, comprehensive job vacancy data could be used to rigorously diagnose existing unemployment problems and identify occupational areas in "shortage" and in "surplus" in state and local labor markets.[83]

During the past two decades, a number of different efforts were made by the Bureau of Labor Statistics and State Employment Security Agencies to collect data on the number and characteristics of job vacancies at the national, state, and local levels.[84] Job vacancies are similar, but not identical, to the concept of current job openings. To be counted as a vacancy, a job opening had to meet the following three criteria:

- the position is currently unoccupied;
- the firm is actively engaged in efforts to fill the position; and
- the job is available for immediate occupancy.[85]

Certain types of job openings do not meet the vacancy definition. For example, an internally posted job opening for which only current employees could bid would not be considered a job vacancy since persons outside the firm are not being recruited to fill it. Once the above job opening is filled, the firm may recruit applicants from the external labor market to fill the job previously occupied by the employee who has been promoted to the above position. This new job opening, if available to persons outside the firm, would be considered a job vacancy as long as it remained unfilled. In other cases, a public agency may have unfilled, authorized positions for which adequate funding was not provided.[86] The agency, given the absence of sufficient salaries in the budget, may not make efforts to fill the positions. Such authorized positions would not be considered job vacancies since no active recruitment is taking place to fill them.

While data on job vacancies are not currently collected nationally, a number of different job vacancy measures could be constructed with the aid of such data. For example, assume that data on the occupational characteristics of job vacancies as well as their location by industry have been collected through a local employer survey. Estimates of the total number and duration of job vacancies for electronic technicians from this hypothetical survey may be as follows:

Occupation	1983 Employment Level	Current Job Vacancies May 1984	Job Vacancies Unfilled 30 days or more	Vacancy Rate (in %)	Long-term Vacancy Rate (in %)
Electronic Technician	500	25	15	4.8	2.9

In this local economy, the estimated annual average number of persons employed as electronic technicians during calendar year 1983 was 500. Findings from the hypothetical job vacancy survey for May 1984 indicate that there were 25 unfilled job openings for electronic technicians meeting the criteria for job vacancies. Fifteen of these 25 job vacancies had been open for 30 days or longer. Those job vacancies open for 30 or more days are considered long-term vacancies. Given the employment and job vacancy data for electronic technicians, we could calculate two additional job vacancy measures. The job vacancy rate is obtained by dividing the total number of available job vacancies in the occupation (25) by the sum (525) of the number of employed persons (500) and vacancies (25) in the occupation. The estimated vacancy rate for this occupation as of May 1984 was 4.8% (or 4.8 vacancies per 100 employed persons and vacancies). The long-term vacancy rate for this occupation is obtained by dividing the number of long-term vacancies (15) by the sum (515) of the number of employed persons (500) and long-term vacancies (15) in the occupation. The long-term vacancy rate for electronic technicians in May 1984 was 2.9%.

- Employment Projections

Effective planning of long-term, educational and job training programs and the provision of career guidance and counseling services are dependent on information regarding future employment prospects as well as current job opportunities.[87] To meet the needs of such data users, the Bureau of Labor Statistics and the State Employment Security Agencies have undertaken a number of activities to produce employment projections. During the past two decades, such projections have been provided for the nation, states, and selected substate areas, including major metropolitan areas, regional vocational planning districts, and employment and training service delivery areas.[88] These employment projections primarily are designed to depict the structure of available job opportunities by industry and occupation in some future year and to provide indications of expected general trends in the growth of employment by industry and occupation over some given time period, e.g., 1982 to 1990. The beginning year of the projection period is referred to as the base year while the ending year is called the target year of the projections.

In its most recent round of national employment projections for 1995, the Bureau of Labor Statistics has produced three alternative sets of occupational employment projections, with each set corresponding to one of three plausible scenarios for economic growth and change during the 1982-1995 period.[89] In the illustrations of the major findings of these national employment projections in this text, data for the "moderate growth" scenario are used. This scenario is based on assumptions of moderate labor force growth of approximately 1.5% per year over the remainder of the decade, fiscal restraints by the federal government producing a steadily declining deficit, a less restrictive monetary policy, an increasing value of the American dollar, and constant real prices for imported oil.

Prior to projecting employment by occupation, estimates of the projected level of employment by industry must be obtained. A summary of the major findings of the national employment projections by major industrial sector for the year 1990 is presented in Table 2-20. Actual employment levels for each sector during 1982 also appear in the table to allow estimates of projected employment change to be calculated. Between 1982 and 1990, total employment in the national economy is projected to increase by 16 million, or nearly 16%. Since overall employment growth will exceed projected growth in the civilian labor force over the decade, the aggregate unemployment rate is projected to decline to 6.3 percent by 1990.

All of the projected growth in employment will occur in the non-farm sector of the economy. Farm employment will continue to gradually decline over the decade. By 1990, only 2.65 million persons will be employed in the farm sector, accounting for only 2.2% of total employment. Given general restraints on government purchases at all levels, private sector employment (outside of agriculture) is projected to grow at a rate three times faster than that of government (18.2% vs. 6.0%). Within the private sector, the construction, services, and finance/insurance real estate sectors will expand their employment most rapidly. Despite the frequent predictions of gloom and doom in the media, the manufacturing sector in the aggregate is projected to maintain its share of total employment during the remainder of the decade, partly reflecting its above average growth during the recovery from the most recent national recession.

Table 2-20
Projected 1990 Employment by Major Industrial Sector
U.S.
(Numbers in 1000's)

Sector	Actual 1982	Projected 1990	Absolute Change	Percent Change (%)
Total Employment	102,315	118,315	+16,000	+15.6
Farm Employment	2,815	2,652	-163	-5.8
Nonfarm Employment	99,500	115,663	+16,163	+16.2
• Government Sector	15,803	16,750	+947	+6.0
• Private Sector	83,697	98,913	+15,216	+18.2
• Mining	742	781	+39	+5.3
• Construction	5,941	6,963	+1,472	+26.8
• Manufacturing	19,234	22,236	+3,002	+15.6
• Transportation, Communications, and Utilities	5,543	6,202	+659	+11.9
• Trade	22,536	26,355	+3,819	+16.9
• Finance, Insurance and Real Estate	5,899	7,113	+1,214	+20.6
• Services	22,617	27,863	+5,246	+23.2

Source: Personick, Valarie A., "The Job Outlook through 1995: Industry Output and Employment Projections," Monthly Labor Review, November 1983, p.26.

NOTE: Total industrial employment in 1982 is 805,000 higher than occupational employment in 1982 shown in Table 2-21 due to the fact that 14 and 15 year old workers are included in the industrial estimates. The occupational employment is based on the CPS.

Industry employment projections can be converted into occupational employment projections with the use of an industry/occupation matrix. These BLS occupational projections are based upon both the 1995 industry employment projections and the projected matrix of industry/occupation coefficients for that year. A summary of the findings is presented in Table 2-21 below.

Table 2-21
Actual 1982 and Projected 1995 Employment by Major Occupational Group
U.S.
(Number in 1000's)

Occupational Group	1982 Actual	1995 Projected	Absolute Change	Percent Change (%)
All Occupations	101,510	127,110	+25,600	-25.2
Professional, Technical, and Related	16,584	21,775	+5,191	+31.3
Managers, Officials, and Proprietors	9,532	12,212	+2,680	+28.1
Sales Workers	6,967	8,771	+1,804	+25.9
Clerical Workers	19,049	23,998	+4,949	+26.0
Craft and Related	11,591	14,769	+3,178	+27.4
Operatives	12,995	15,419	+2,424	+18.7
Service Workers	16,241	20,706	+4,465	+12.7
Laborers	5,861	7,052	+1,191	+20.3
Farmers and Farm Workers	2,691	2,407	-284	-10.6

Source: George T. Silvestri, John M. Lukasiewicz, and Marcus E. Einstein; "Occupational Employment Projections through 1985," Monthly Labor Review, November 1983, pp. 38-43.

Between 1982 and 1995, employment in all occupations is projected to increase by 25.6 million, or slightly more than 25%. Employment in each of the major white-collar occupational groups is projected to grow at an above average rate, with professional and technical workers increasing most rapidly (31.3%). Due to the projected boom in the construction sector, which employs a substantial number of craft workers, employment of crafts workers is also projected to grow at an above average rate during this period. As a result of declining employment in the farm sector, the number of persons employed as farmers and farmworkers is projected to drop by 11% between 1982 and 1995.

Once the levels of employment during the target year have been projected for each occupation, estimates of annual job openings due to growth in employment can be derived. The annual average number of job openings due to growth can be obtained by dividing the projected change in employment between the target and base years of the projections period by the number of years covered by the projections. In Table 2-22 below, data are presented on 1984 and 1990 projected employment for systems analysts in data processing and machinists occupations in a state economy. Between 1984 and 1990, the total number of employed systems analysts is projected to increase by 3,041. The projected annual average number of job openings due to growth for systems analysts is 507. This figure was obtained by dividing the projected change in employment (3,041) between 1984 and 1990 by the number of years (6) between the target and base periods. Similar calculations for the machinist occupation yield an estimate of 110 for the projected annual average number of openings.

Table 2-22
Projected Employment and Job Openings by Source Connecticut 1984-1990

Employment Occupation	1984 Actual	1990 Projected	Annual Average Openings 1984-1990: Due to Growth	Due to Replacement[1]	Total Openings
Systems Analysts, EDP	8,087	11,128	507	94	601
Machinists	5,429	6,089	110	172	282

Source: Connecticut Labor Department, Office of Research and Information, Employment Security Division, Occupational Outlook 1984-1990, Connecticut.

NOTE: (1) Replacement needs include only projected job openings due to deaths, retirements, and selected types of temporary labor force withdrawals.

In addition to the job openings created by growth in employment, other job openings in an occupation will occur as a result of the need to replace workers leaving the occupation over time. Replacement needs will be generated by occupational transfers, retirements, deaths, and other labor force withdrawals, both temporary and permanent. State/local employment projections and, until recently, national projections, included estimates of replacement needs only for deaths, retirements, disability, and temporary withdrawals of women for childbearing and child raising reasons.[90] These replacement estimates were calculated on the basis of annual separation rates for each occupation. The average separation rate for an occupation reflects the number of employed persons expected to withdraw from the labor force per 100 employees for any one of the above four reasons.[91] For example, a separation rate of 3.0 implies that 3 of every 100 workers in the occupation will separate from employment in that occupation during the year.

Data on the projected annual number of openings for systems analysts and machinists due to replacement needs are also presented in Table 2-22. The annual average number of job openings due to replacement of systems analysts is 94 while that for machinists is 172. Openings due to replacement needs account for only 15% of total projected openings (growth plus replacement) for systems analysts while replacement needs will generate slightly more than 60% of the total projected openings for machinists. The difference between the shares of total openings due to replacement for these two occupations is attributable to two basic factors. First, employment of systems analysts is projected to grow far more rapidly than the employment of machinists. The annual average employment growth rate for systems analysts is 6%, nearly three times that of machinists (2% per year). Second, the median age of machinists in this state is substantially higher than that of systems analysts. Annual replacements for retirements and other labor force withdrawals associated with the older ages of machinists are nearly three times higher than those of systems analysts (3.2% versus 1.2%). Those occupations characterized by an above average share of older workers will experience relatively high numbers of job openings in the form of replacement needs.

During the past few years, the Bureau of Labor Statistics has conducted longitudinal research on the mobility of workers among various labor force statuses and occupations. The findings of these analyses, which are based on matched longitudinal data from the Current Population Survey, have been used to produce more comprehensive estimates of replacement demand by occupation at the national level.[92] These new replacement demand projections cover replacement needs for all forms of labor force withdrawals (except deaths) and occupational transfers. In the aggregate, these replacement demands are quite substantial. Annual average replacement demand for all occupations combined for the remainder of the decade will be 9 to 10 times as large as the number of projected openings due to growth.

To illustrate the nature of these more comprehensive replacement need estimates, projected openings data for three occupations are presented in Table 2-23 below. The shares of total openings due to replacement for these three occupations range from 86.6% for machinists to 94.7% for waiters and waitresses. The latter occupation is characterized by one of the highest average separation rates (40.0%) due to high rates of occupational transfers and labor force withdrawals among persons working in this field.

Table 2-23
Projected Annual Job Openings by Occupation
U.S.
1982-1995

Occupation	Total Openings 1982-1995	Openings Due to Growth	Openings Due to Replacement[1]
Bank Tellers	140,590	11,850	128,740
Machinists	33,340	4,460	28,880
Waiters and Waitresses	817,740	43,230	774,510

Source: i) George T. Silvestri, John M. Lukasiewicz, and Marcus E. Einstein,; "Occupational Employment Projections through 1995," Monthly Labor Review, November 1983, "Table 1," pp.38-43.

ii) Eck, Alan, "New Occupational Separation Data Improve Estimates of Job Replacement Needs," Monthly Labor Review, March 1984, "Table 1," pp.5-7.

NOTE: (1) Replacement needs include transfers to other occupations and all labor force withdrawals, with the exception of deaths.

Currently, these more comprehensive measures of replacement needs are only available for selected occupations at the national level. State and substate projections do not include occupational transfers in the replacement needs. Use of these job openings data for human resource planning must be made with a high degree of caution. Many of the projected replacement needs can be met by occupational transfers into the occupation and by new-entrants into the labor force. Additional training may not be warranted if other sources of supply are readily forthcoming.

Labor Market Imbalances: People/Jobs

The availability of timely, comprehensive supply and demand data by occupation would enable the identification of occupations in shortage and surplus for program planning and operating purposes. From an economist's viewpoint, the number of individuals available and willing to work in an occupation at a given wage (supply) will affect an employer's decision with respect to how many workers to hire in that occupation. Similarly, the demand for workers at a given wage affects the number of individuals able to enter an occupation. Many factors, both economic and non-economic, complicate the study of the interaction between supply and demand for workers. Neither employers nor workers have complete and accurate knowledge of the job market and therefore do not always behave as hypothesized.

In the short run with real wages fixed, the demand for workers in an occupation will be equal to the number of employed persons in the occupation plus the number of job vacancies in the occupation. In a similar vein, the supply of workers in an occupation in the short run is equal to the sum of the number of persons employed in the occupation plus the number of qualified unemployed persons seeking work in an occupation. The existence of a shortage implies that the demand for workers in the short run exceeds the available supply. Identification of occupations in shortage, thus, requires information on both the available number of job vacancies and the current number of unemployed persons in each occupation.

In an ideal situation, complete and consistent information on current and projected job openings and current and projected labor market entrants would be available to all users. Given the data on projected job openings by occupation, projected shortfalls and surpluses of workers could be identified if there were data also available on the projected supply of workers by occupation. Although the U.S. Bureau of Labor Statistics and a number of State Employment Security Agencies have produced projections of the future size of the civilian labor force and its age, sex, and race composition, comprehensive projections of the available supply of workers by occupation are not available. In addition to gaps in the data needed for calculating and comparing job openings and entrants, procedures for conducting such comparisons are not standardized. For example, it is difficult to estimate the extent to which occupational or geographic mobility will affect the supply of workers for a specific occupation.

Supply/demand comparisons currently being conducted, which are based on available information, differ from an economic model of supply/demand interface. The currently used process of analyzing "availables" from institutional supply sources, education and training program completers and leavers, and data on projected job openings by occupation involves "matching" the institutional supply data pertaining to potential labor market entrants with demand data related to projected job opportunities in specific occupations in future time periods. Comparisons of data on projected job openings and expected labor market entrants result in one of three outcomes: a supply/demand balance (entrants equal openings), a potential shortfall (entrants less than openings), or a potential surplus (entrants greater than openings).

The practice of grouping related training programs and occupations is necessary because an occupation can be related to a number of different training programs and a training program can prepare participants for a number of different occupations. Also, occupational data are normally collected and classified (coded) to meet a specific need of the data collecting agency. Data on occupations may be classified according to any one of several different systems, though occupational employment projections for states and substate areas are classified using census or Occupational Employment Statistics (OES) codes discussed in Chapter 3. Data on completers of education and training programs are classified by programs rather than by occupations, specifically by the Classification of Instructional Programs (CIP). Many training programs, while having different CIP codes, may have a significant degree of overlap in the curriculum and in the skills for which they train and in the occupations for which a completer of the program may be qualified.

Because of the above types of analysis, it is not always appropriate to plan programs in isolation from all other programs, since other programs may be addressing the same occupational needs. As a result, it is necessary to bring together related programs and occupations into groups called clusters or units of analysis. By doing this, planners are made aware of other related programs and can take into account anticipated supply from them. To bring such information together, it is necessary to match education and training program codes to occupation codes using crosswalks developed by NOICC. Occupational crosswalk systems have been developed to provide a mechanism for combining the occupational projections data and the institutional supply data into a format suitable for multi-agency planning purposes.

Currently, there are two generally accepted approaches for matching occupational supply and demand. Table 2-24 illustrates the concept of interfacing occupational demand and supply, specifically that portion of supply that comes from institutional training. One approach is occupational clustering which involves grouping occupations by common skill requirements or work activities. Similarly, educational clusters are based on the skills taught as part of the course curriculum. Clustering allows homogeneous groups of occupations and educational courses to be grouped together. The second approach for matching occupational supply and demand data is to use direct one-to-one classification relationships. Direct code crosswalks are based upon the assumption that specific interrelationships between the codes in different classification structures can be identified. Direct code crosswalks are necessary for comparison of supply and demand data that have been coded on the basis of different occupational classification structures.

Currently available Occuptional Information Systems (OISs) can be used to compare the data on education/training program completers with data on projected openings to provide a rough indication of the extent to which a potential occupational shortage may exist, i.e., the projected openings exceed supply, or, conversely, whether a surplus exceeds, i.e. supply exceeds existing openings. The theoretical and applied literature on manpower imbalances has shown that "occupational shortages" can be generated by a number of different types of labor market developments and that "shortages" may evince themselves in somewhat different ways.[93] In practice, occupations in short supply will frequently be characterized by relatively high and rising vacancy rates and/or by rising relative wages.

The totals in Tabie 2-24 indicate that there were 482 projected job openings per year for electrical/electronic technicians in a local labor market. There were only 324 persons who completed an education/training program related to this occupation during 1983. Since the number of projected openings exceeds the available number of persons from institutional supply sources by 158, this occupation would be classified as a shortage occupation. At this level, it appears that continued training at current levels or

Table 2-24
Occupational Information System
Supply-Demand Report
Statewide
1983

Cluster Title Electrical/Electronic Tech

Report Period: 1983 Demand Projections: 1983-1990 Cluster Code 0305

		Employment					Competers form:					
-Discipline- Title	Code	Estimated Employment 1983	Projected Employment 1990	Annual Average Growth	Annual Average Replacement	Annual Average Openings	Public Secondary Education	Public Post Secondary Education	Private Post Secondary Education	JTPA	Public Adult	Total
DEMAND												
Electrical & Electronic Technician	100B0803	7001	8829	229	101	330						
Data Processing Machine Mechanic	500B1400	892	1985	137	7	144						
Electromedical Equipment Repair	500B3224	111	135	3	5	8						
TOTALS		8004	10,949	369	113	482						
SUPPLY												
Computer Technology	15.0301						20	3	20			23
Electrical Technology	15.0302						20	26				46
Electronic Technology	15.0303							80	20	25	20	145
Electrical and Electronic	15.0399							68	42			110
TOTALS							20	177	82	25	20	324

Source: Microcomputer OIS, NOICC, 1985

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perhaps even a slight increase in training might be appropriate. Supply may come from a number of other sources as well, so available information should be used in conjunction with information such as placement rates of training programs, wage data, information on the national outlook, etc. If the number of persons available exceeded the number of openings, this occupation would be considered as a surplus occupation, i.e., an occupation characterized by excess supply.

Comprehensive and timely job vacancy data by industry and occupation would be helpful in planning and operating a number of human resource programs. The absence of such comprehensive job vacancy data does pose problems for planners in rigorously identifying occupations currently in shortage and surplus in their local labor markets. The job banks operated by the State Job Services do provide information on the number of currently unfilled job openings on file in these agencies. These job bank data openings can be used to identify the number of job openings in each occupation and their geographic location. The major weakness of this source of job openings data is the limited coverage of the data. The job bank openings data only represent job openings that employers have submitted to the Job Service. A series of previous research studies have shown that only 8-15% of all job openings during a year will be posted with the Job Service and that this coverage will vary by occupation and industry of employment.[94] Knowledge of the representativeness of the job bank unfilled openings data is needed for proper interpretation and use of the data in the human resource planning process.

Chapter Three:

Labor Market and Occupational Information

Introduction

Effective planning of all human resource programs is dependent on the availability of timely and reliable data on local human resource problems, current labor force developments, and the current and projected structure of employment opportunities by industry and occupation. Recognizing the need for such information, the Congress has called for the development of labor market and occupational information systems to support the planning of state and local human resource programs.[1] Underlying these provisions was the belief that improved information would strengthen the state and local planning process and eventually enhance programs' long-term effectiveness by making them more responsive to labor market realities.

During the past few years, Congressional support for the development and use of labor market and occupational information systems was reaffirmed in several key pieces of legislation.[2] In passing the Job Training Partnership Act of 1982, Congress called upon the Secretary of Labor to provide funding for the maintenance of "a comprehensive system of labor market information on a national, regional, state, local, or other appropriate basis." Other provisions of the JTPA legislation called for the development and maintenance of national, state, and local data bases on current employment by industry and occupation, and the production of information sources on the actual job duties, education and training requirements and working conditions of occupations. The JTPA legislation also provided funding to the National Occupational Information Coordinating Committee for the continued support of national and state occupational information systems and career information systems. The Carl D. Perkins Vocational Education Act of 1984 provides continued funding for the NOICC and calls for the continued development and refinement of occupational and career information delivery systems. This Act also supports the use of common information systems that will lead to improved coordination among state and local JTPA Vocational Education, Job Service, and apprenticeship agencies in the planning and design of human resource programs.

While a universally accepted definition does not currently exist, Labor Market Information (LMI), describes and interprets current and historical data on labor force and employment developments, the characteristics of people and jobs in the labor market, the terms and conditions of employment for various jobs in the labor market, hiring transactions, the movement of workers among job and other activities related to the functioning of labor markets. LMI is used to describe the magnitude and nature of labor exchange activities in specifically defined economic and socially integrated geographic areas during a specified time period. It also focuses on the nature, characteristics, and operation of the mechanisms, institutions, and participants involved in the matching of labor supply with labor demand. Efforts have been made to develop large integratedinformation bases that include current estimates and projections based upon a variety of administrative data bases and statistical survies.

Key LMI components include aggregate data on the size of the labor force and the pool of unemployed persons, disaggregated data on characteristics of persons in the labor force and among the unemployed, data on the industrial and occupational structure of local, state, and national economies. Proper analysis of LMI takes into account the factors that impact on the behavior of people and employers and attempts to comprehend the nature of the basic labor market interaction between these two sides and the conditions under which the interaction occurs. Basic products derived from the LMI program include data on the number of persons actively participating in the labor force the employment and unemployment status of the labor force, employment and wage level for industry and occupation. These products are generally available in hard copy and in automated delivery modes. In many cases, these products summarize and present data from a variety of sources in a format appropriate for multi-agency uses.

The historical, current and projected data comprising the LMI system are analyzed economic indicators that are analyzed by a variety of users for policy-making and planning purposes. Users of Labor Market Information include:

- POLICY MAKERS - LMI has been instrumental in formulating various federal and state laws and executive orders.
- ECONOMIC PLANNERS - LMI is used to set the guidelines for the funding and operation of many government programs and is an important factor in many planning and decision-making processes relating to the labor market.
- TRAINING AND EDUCATIONAL PROGRAMS - LMI is used to identify training needs and to plan appropriate training curriculum.
- INTERMEDIARIES - LMI is used by school and employment service counselors for identifying employment developments by industry and occupation and for locating job openings.
- PRIVATE SECTOR - LMI is the basis for many marketing and planning decisions by individual firms and is used as an informational data base by unions, research, and consulting service firms, etc.
- MEDIA - LMI is used to explain local, state, and national economic conditions.
- GENERAL PUBLIC - LMI is used by labor market participants to make career choice and location decisions.

Public and Private Sector Roles

The system for producing Labor Market Information relies on the efforts of federal and state government agencies as well as the private sector. Over time, the roles of the organizations involved in this federal/state cooperative effort have been subject to change. The core data programs are generally funded at the national level and implemented by the states. With the states utilizing a common methodology, the statistics produced by the states are the basis for the national data series for several key LMI programs.

1. Private Sector Role

The private sector is the ultimate source of many of the statistical series included in LMI. For example, the establishment employment and wage series published monthly for local areas, states and the nation is based on a monthly sample survey of individual firms. Establishments are also asked periodically to report data on their occupational structure, wage levels, and future employment needs. Households provide information monthly to the CPS survey and the decennial censuses. The data derived from the private sector is essential for an effective LMI system.

2. Federal Role

Several major federal agencies are involved in the LMI program. A core responsibility of the federal government is to develop, maintain and report those data that are in the national interest. In addition, the federal government, in partnership with the states, produces a variety of demographic and socio-economic data.

The BUREAU OF LABOR STATISTICS (BLS) is a federal bureau within the U.S. Department of Labor that collects and issues statistics on economic and social trends. The Bureau's figures are prepared to serve the needs of business, labor, Congress, the general public, and other governmental administrative and executive agencies. The BLS is responsible for the development of methods and procedures for federal/state statistical programs.

The BUREAU OF THE CENSUS, housed within the U.S. Department of Commerce, conducts a decennial census of households and, as a result, processes, compiles, and disseminates a wide range of demographic, social, and economic data. The Census Bureau, under contract with BLS, also conducts the monthly household Current Population Survey (CPS) to collect national and state labor force statistics.

The EMPLOYMENT AND TRAINING ADMINISTRATION (ETA) in the U.S. Department of Labor has supported development of many LMI products for use by local employment and training agencies. Although no longer funded by ETA, many of the mechanisms structured for the generation and analysis of LMI were initiated by ETA. The development of the establishment report system of employment, wages, and contributions, known as the "ES-202," is also funded by ETA through 1985.

The NATIONAL CENTER FOR EDUCATION STATISTICS (NCES) is a federal agency that collects and disseminates statistics related to education in the United States and in other nations. The Center periodically prepares statistics and reports on the condition of education in the United States. The Center publishes and maintains a "Classification of Instructional Programs" (CIP). Data on vocational education and higher education program enrollments, completers, and placements are collected and cateogrized using the CIP coding structure at the national, state, and local levels.

The OFFICE OF VOCATIONAL AND ADULT EDUCATION (OVAE) is a federal agency responsible for allocating federal vocational education funds to the states and providing assistance and guidance to states on improved planning in the use of vocational education funds. While OVAE is not a primary collector of statistics, State Plan requirements issued by OVAE and its emphasis on improved planning have a significant impact on the types of products and analysis produced in an occupational information system.

The NATIONAL/STATE OCCUPATIONAL INFORMATION COORDINATING COMMITTEES (NOICC/SOICC) is an occupational information network originally established by the Education Amendments of 1976. Subsequent legislation including CETA, JTPA, and the Vocational Education Act of 1984, have reinforced and added responsibilities in this area. Both NOICC and the SOICCs, as defined by legislation, are interagency committees of users and producers of occupational information. Representatives from Vocational Education, Job Training Partnership Act (JTPA) State Councils, State Employment Security Agencies, and Vocational Rehabilitation Agencies, serve on the state committees. The statutory members of the national committee are the Assistant Secretary for Vocational and Adult Education, the Commissioner of the Rehabilitative Services Administration, the Director of the Office of Bilingual Education and Minority Language Affairs and the Administrator of the National Center for Education Statistics of the Department of Education, the Commissioner of Labor Statistics and the Assistant Secretary for Employment and Training of the Department of Labor, the Undersecretary for Small Community and Rural Development of the Department of Agriculture, the Assistant Secretary for Economic Development of the Department of Commerce, and the Assistant Secretary of Defense (Manpower, Installations and Logistics.)

The major purpose of the NOICC-SOICC program is to: (1) improve coordination and communication among administrators and planners of human resource programs and producers of occupational information; (2) coordinate and assist states in the development of an Occupational Information System (OIS) that addresses the common information needs for the planning and operation of employment related training programs; and (3) assist states in the implementation of Career Information Delivery Systems (CIDS).

The major data bases on information systems generated by the NOICC-SOICC program include the Career Information Delivery System, supply/demand products/systems and products such as Vocational Preparation and Occupations (VPO). CIDS is designed to assist adults and youth in career decision making. Supply and demand information is intended to support planners in making decisions concerning educational and training programs. The VPO relates vocational training programs and occupations. It is useful for curriculum planning, for making supply/demand comparisons and for making more effective use of career information systems and products by bringing together information from different classification systems.

3. State Role

The labor market/occupational information provisions of the Job Training Partnership Act currently provide the basis for the state-level functions to coordinate the design and use of a comprehensive information system that is both cost-efficient and oriented to the needs of specific users. Since the 1960s, employment and training programs have increasingly focused on labor market problems by shifting the primary responsibility for planning and decision making from the federal to the state and local levels. These shifts in programmatic focus and decision-making authority have been paralled by a shift in the development of labor market and occupational information systems from the national to state and local levels. These provisions emphasize and enhance activities that hopefully will result in a more cohesive, well-coordinated labor market/occupational information system. There is considerable flexibility at the state level to conduct this work.

Consistent and reliable economic information describing the labor market that is integrated with a variety of agency management information systems can provide the basis on which the governor and other public and private sector officials can use consistent interagency information for policy and program decision making. The JTPA requires both that automated technology be used to the extent feasible and that the information be responsive to the economic information needs of public and private sector users.

The JTPA also contains a key provision to assure a cost-efficient, comprehensive state-based information system. The designated state unit must assure that the administrative records of various agencies have been designed to reduce paperwork and that multiple survey burdens on respondents are reduced. States are given the opportunity, through specified procedures, to combine or consolidate federal administrative management information reporting requirements. The opportunity to consolidate federal administrative records, if considered collectively on an interagency basis in conjunction with the other possible activities, could provide a vehicle to reduce the reporting burden.

According to Section 125 of the JTPA legislation, each state must designate an entity to be responsible for overseeing and managing the production and use of data within the state. This unit is also in a position to serve as the state liaison with the appropriate federal actors. Both the Research and Analysis Unit and the SOICC play major roles in this area, whether or not they are designated as the lead agency. In about 35 states, the LMI oversight activities are the responsibility of the State Employment Security Agency (SESA), particularly the agency's Department of Research and Analysis. In other states, the SOICC, the Governor's Office, or some other unit may assume this responsibility. The Research and Analysis Units are the major producer of LMI in all states.

The unit is responsible for publishing and disseminating an interagency information system of labor market, occupational, and career data which addresses the state and substate area economic information needs of state and local government, the private sector, including employers and unions, and also individuals making career choices and other employment related decisions. In addition, comparability across state lines is assured due to the minimum federal standards. Each state is still responsible for enhancing these requirements to meet the needs of a variety of state and sub-state users.

The roles of the LMI-producing agency are complex and diverse, including the following:

- DATA COLLECTION - The information collected and maintained is mainly derived from agency administrative data bases and from employer surveys. In running the Job Service program, for example, the administrative data base includes information on the characteristics of the unemployed and job openings reported by employers. The administrative data base on the insured unemployed and the establishment employment data are important inputs to local area unemployment statistics. Surveys of firms are conducted on a monthly basis to determine employment levels by industry. Also, periodic establishment surveys yield data on occupational staffing patterns and wage rates.
- DATA ANALYSIS AND RESEARCH - Labor force components, industry employment, and occupational supply/demand data are analyzed to explain current trends and to project future needs. Also, a variety of demographic, social economic data on the labor force, employed and the unemployed are analyzed to assist in employment and training planning.
- DATA DISSEMINATION - The various statistical series, such as labor force and industry employment data are published and/or are available interactively and are widely distributed to various user groups. Special studies and planning documents also reach a large audience.
- PRIVATE SECTOR TRAINING AND TECHNICAL ASSISTANCE - To facilitate the LMI use and analysis by data users, data producing agents generally provide some form of technical assistance which may consist of individual consultation, group workshops, and technical guides or manuals.

Data Collection Programs

Essentially, LMI products are generated from three alternative sources. These are household surveys, establishment surveys, and human resource agency administrative data bases, including those of the employment service, education, and welfare agencies. The household surveys mainly provide information on overall labor force, employment and unemployment trends, and demographic characteristics of the population and labor force. The establishment surveys generally provide information on industry employment, occupational employment, and wages. The administrative data bases are used to "benchmark" survey data, serve as inputs in various labor market measures, and support employment and training data needs. The core LMI programs are discussed in detail below and are summarized in Table 3-1.

1. Household Surveys

Labor force data can be collected in a number of different ways; however, the primary method used to collect such data in the United States is that of household surveys.[3] Households consist of one or more persons occupying a housing unit. The Census Bureau's definition of a housing unit includes homes, apartments, and sets of rooms intended for occupancy by one or more persons in separate living quarters.[4] During March of 1981, there were approximately 82.4 million households in the United States.

Monthly statistics on the labor force status of the working-age population of the United States are obtained through a household survey known as the Current Population Survey, frequently referred to in the employment and training literature as the "CPS."[5] The CPS currently consists of monthly interviews with a scientifically selected representative sample of about 60,000 occupied household units throughout the nation representing the economic and social characteristics of the civilian noninstitutional population.[6] The national sample includes households from every state in the nation and the District of Columbia. Respondents are interviewed to obtain information on the labor force status of each household member age 16 and older.

The Current Population Survey is administered jointly by two federal government agencies, the Bureau of the Census and the Bureau of Labor Statistics (BLS). The Census Bureau, under contract to BLS, is primarily responsible for the ongoing selection of the sample of households and the collection of the data by professional interviewers that it trains and employs.[7] The analysis and publication of the monthly labor force data are the responsibilities of the Bureau of Labor Statistics. Detailed CPS information is published monthly for the nation, and annually for the states, 30 target metropolitan areas, and a number of large central cities. The monthly findings of the CPS, with respect to the labor force status of the working-age population, appear in a variety of BLS publications. The most comprehensive publication containing these findings is that of Employment and Earnings, a monthly publication of the Bureau of Labor Statistics.

The monthly CPS provides timely and statistically reliable information on the economic and social characteristics of the population, including the labor force status of the working-age population, those working (employed) or looking for work (unemployed), and those who are not in the labor force. The CPS also is a comprehensive current source of information on personal characteristics such as age, sex, race, origin of descent, educational attainment, and marital and family status. It is the largest monthly survey of its type in the world, and the only U.S. source of data on the civilian noninstitutional population which is released on a regularly updated basis. The findings of the survey can be used to examine the actual labor force behavior of working-age individuals throughout the nation, to trace changes over time in the size and composition of the labor force, and to identify the number and characteristics of employed and unemployed individuals. Supplements to the basic monthly survey appear at different times of the year to provide additional demographic, socio-economic and labor force information on the population. For example, the March supplement is used to provide information on the work experience, earnings, and incomes of individuals during the preceding calendar year. Data from the March supplement are used to estimate the annual incomes of individuals and families, the number of persons and families with incomes below the official poverty line, the number of economically disadvantaged persons, and the number of individuals experiencing various forms of labor market hardship.[8]

The monthly CPS data are not only used to produce estimates of the labor force status of the working-age population of the United States, but also to generate direct monthly estimates of the number of employed and unemployed persons in the eleven largest states of the nation.[9] They are also used as critical data inputs in the methodologies designed to provide monthly estimates of the number of employed and unemployed persons in every other state and local area of the nation.[10]

Census information is the most comprehensive statistical data base on the demographic, social, and economic characteristics of the population. The decennial census of households provides complete count data on general population characteristics and sample data on selected social and economic statistics. Periodically, households are surveyed by the Bureau of the Census on a sample basis to update specific social and economic trends.

2. Establishment Surveys

Most industry employment data are collected through establishment surveys, such as the Current Employment Statistics survey. Establishment surveys collect employment information directly from business establishments that are engaged predominately in the production of one type of goods or services generally at a single location.[11]

The CURRENT EMPLOYMENT STATISTICS (CES) program, a monthly sample survey of establishments, provides employment, hours worked, and earnings information on a national, state, and local area basis in considerable industry detail. The program is a federal/state cooperative effort administered by the Bureau of Labor Statistics in cooperation with State Employment Security Agencies. The establishments surveyed report on a voluntary basis and are classified by industry based on their principal product or service. The data are collected monthly by mail survey for the pay period including the 12th day of the month. This establishment-based statistical series on the number of nonagricultural wage and salary jobs (excluding private households) by place of work is the only geographically comprehensive source of information on industry employment at the state and substate levels. The CES is also referred to as the "790" program.

The OCCUPATIONAL EMPLOYMENT STATISTICS (OES) program is a survey of establishments to compile data on employment by occupation within industries. The survey is part of a federal/state cooperative program with the State Employment Security Agencies responsible for data collection, publication, and distribution. The survey is conducted through a mail questionnaire over a three-year recurring cycle covering manufacturing, nonmanufacturing, trade industries, and government. All establishments employing 250 or more employees receive questionnaires. The mailing also includes establishments with fewer than 250 employees based on a stratified random sample. The questionnaires are sent to a particular industry or group of industries with a similar occupational structure and include a specifically prepared list of occupations that reflect the industry's occupational composition. The results of the survey provide a basis for the analysis of state and substate occupational employment patterns by industry, the impact of technological and other changes on occupational requirements, and the location and number of occupations within and among industries.

AREA WAGE SURVEYS are conducted by the Bureau of Labor Statistics on an annual basis to provide wage information for selected metropolitan areas, states, and the nation. This survey provides averages and distributions of earnings for selected office clerical, professional and technical, skilled maintenance, material handler, and custodial occupations. The range of industries covered by the Area Wage Survey includes manufacturing, public utilities, wholesale trade, retail trade, finance, and selected services.

3. Human Resource Agency Administrative Data Bases

The data bases produced by various agencies can be used to provide key data elements for LMI systems.

The EMPLOYMENT, WAGES, AND CONTRIBUTIONS DATA (ES-202) is a federal/state cooperative program that provides a wide range of information on establishments from a mandatory reporting system based on Unemployment Insurance (U.I.) laws. The data base includes information on specific firms and is aggregated by state and county for detailed industrial classifications. The type of information available includes firm size and number by industry, monthly covered employment, and taxable wages. The ES-202 is the basic indicator of U.I. coverage. The data base permits analysis of employment trends, including seasonal changes, in relation to U.I. programs. Since the ES-202 provides the most comprehensive count of industry employment, it serves as the benchmark for the national, state, and area Current Employment Statistics program and is the basis for income estimates by county. The ES-202 is also the source of an employer address file which is the framework for establishment surveys. Although disclosure criteria vary by state, the information regarding individual firms reporting under this program is generally considered confidential.

UNEMPLOYMENT INSURANCE CLAIMANT DATA are available from the records of the State Employment Security Agency. The data base provides industry, occupation, age/sex/race detail for unemployed persons collecting benefits from the regular program. Therefore, it may not be representative of all unemployed persons. The information is available monthly for the state, but local area information may vary among states. Publication of this information also varies from state to state, but is generally provided by request from the SESA. Based on a sample of claims filed, data on the characteristics of the insured unemployed for the state are also provided quarterly through a required federal report (ES-203).

THE CONTINUOUS WAGE AND BENEFIT HISTORY (CWBH) program is an elaborate system in which some states participate to provide information about the experiences and characteristics of individuals in the Unemployment Insurance (U.I.) program and, to the extent possible, information on the labor market. The CWBH program is designed to utilize U.I. operating data, together with relevant additional data, to create a CWBH data bank. The system derives information from a sample of U.I. claimants and covered workers. The data bank emphasizes the continuing availability of both current and historical information on these workers. The objective is to provide claimant and worker characteristics on an individual case basis followed through time. These raw data can be summarized and analyzed for research purposes such as targeting groups for specific training programs and tracking industrial and earnings mobility. However, starting in fiscal year 1985, this program will no longer be funded at the federal level; however some states are expected continue their present systems with local funding.

The STATE EMPLOYMENT SECURITY JOB APPLICANT/ORDER DATA SYSTEM contains information on the characteristics of Job Service applicants registered for work, job orders received from employers, and related activities of the Employment Service agencies. The applicant data include information regarding age, race, and sex as well as certain social and economic characteristics. The job openings data are available by occupation and industry with wage detail. In addition, the information is broken out to include openings received, filled, unfilled, and open for 30 days or more. The system initially set up to generate this information was termed the Employment Service Automated Reporting System (ESARS).

Information on educational enrollees, completers, placements, wages at placement, and job retention is available through STATE EDUCATION INFORMATION SYSTEMS for secondary and post secondary (vocational/technical and higher education) institutions. Not all states have the same level of detail or automation capabilities. The post secondary education data include an institutionally based array of information on college programs, students, and graduates collected by the National Center for Education Statistics. Vocational education data are reported by the local education agencies on an annual basis to the State Education Department. Enrollment and completion data are reported by Classification of Instructional Programs (CIP) codes.

JTPA MANAGEMENT INFORMATION SYSTEM (MIS) DATA contain participant and financial information. The source of the data is the JTPA Intake and Characteristics Form. The local data are reported quarterly and include displays of total program expenditures by cost category, total participants served to date, and total participants on board at the end of the quarter for each title and/or grant. Also included are enrollment and termination data detailing those who entered full-time and part-time unsubsidized employment and other positive terminations for youth programs and participation in specific types of program activities (i.e., classroom training, OJT, etc.)

WELFARE (AFDC) DATA are generally available from the state welfare department based on the county-level AFDC Intake Form. The data include characteristics of recipients and determination of benefit entitlement.

The VOCATIONAL REHABILITATION SERVICES CLIENT FILE generally contains data on earnings at referral, earnings at closure, and occupation at referral and closure. The DOT code is used to classify occupations. Some public assistance information for handicapped applicants may be included with this information. Demographic characteristics on handicapped clients may also be included. The format and contents of these data are not standardized across states. However, a national report, RSA-911, is generated by each state VR agency. The information is taken from the VR intake document and individual records are identified by social security number.

Data Classification Systems

A number of different classification systems are used to compile and categorize occupational, industry and educational/training supply information. A brief review of these follows.

1. Industrial Classification Systems

The Standard Industrial Classification (SIC) system uses a conceptual approach in which firms that engage in the production and distribution of homogenous products within the same market are grouped together into industries. The classification system uses definitions for industries based upon the products or services produced using increasingly narrower ranges of products or services to distinguish industries from one another at increasing levels of detail. The establishment surveys such as the Current Employment Statistics program are based upon the SIC system. Once an establishment is assigned to an industry, all of its wage and salary employment is allocated to that particular industry.

For example, at the broadest level of categorization, the SIC classification system sorts out "goods producing" industries from "service producing" industries. A somewhat more detailed classification of industries differentiates industries within the goods producing sector among agricultural products, mineral products (coal/iron ore), construction products, and manufactured products. Within the manufacturing sector, transportation equipment products would be differentiated from other types of manufactured goods. Further refinement could be made by sorting out ship manufacturing, motor vehicle production, and aircraft production.

2. Occupational Classification Systems

Over time, a number of different occupational classification systems, including the Census-based system, the Dictionary of Occupational Titles (DOT), the Occupational Employment Statistics (OES) system, and the Standard Occupational Classification

System (SOC) have been developed. Each of these classification systems was designed to meet the needs of somewhat different users of occupational employment data; thus, are they not structured in a similar manner.[12] For example, until recently, the Bureau of the Census used its own occupational classification system to collect employment data during both the monthly CPS survey and the decennial censuses.[13] Before the 1980 Census, the Census system included approximately 400 job titles. In this system, occupations primarily represented various socioeconomic classes of workers.[14] Little attention was paid to the specific nature of the job tasks performed by workers in different occupations. The education and training requirements for such occupations could not be determined through this classification system. This system also provided only a limited degree of detail on the occupational structure. In 1980, the Census classification system was revised to correspond more closely with the SOC system.

In sharp contrast, the Dictionary of Occupational Titles (DOT), first developed in the 1930s and currently in its fourth edition, provides concise descriptions of job tasks for over 17,000 separate occupational titles.[15] This system is based upon job task analysis that examines the specific tasks or functions performed by workers at various stages of the production process for goods and services. The DOT thus attempts to delineate jobs based upon the nature and content of the specific tasks that workers are required to perform. The DOT also is structured in a manner that allows the user to identify the formal education and training requirements for individual occupations.[16]

A third occupational classification system increasingly used over the past decade is that developed by the Bureau of Labor Statistics for use in its Occupational Employment Statistics (OES) survey. The OES survey's occupational classification system, which has been revised recently to correspond more closely to the SOC, contains nearly 800 job titles and definitions that specify job tasks and functions for individual occupations, frequently on an industry-specific basis.[17] Previously, it contained nearly 1,600 job titles. The OES system combines some of the hierarchical elements of the previous Census-based classification system with the job content and task orientation of the DOT.[18] Thus, the OES system is capable of identifying and measuring the level of employment for specific categories of workers engaged in similar job tasks. The OES classification system can be used to provide estimates of occupational employment at various levels of detail. The system also is currently used to provide critical data inputs into occupational employment projections programs at the national, state, and local levels.

Data Synthesis and Analysis Programs

1. Local Area Unemployment Statistics (LAUS) Program

LAUS is a federal/state cooperative program which provides monthly estimates of the civilian labor force, total employment, number of unemployed, and the unemployment rates for the states, labor market areas, counties, and cities. The methodology involved in developing the LAUS estimates incorporates information derived from the three main LMI data sources--household surveys, establishment surveys, and SESA administrative records.

The major component is the estimate of the number of persons employed in the monthly Current Employment Statistics survey of establishments. However, several adjustments are necessary to convert the CES estimates to fit the definitional framework of the LAUS program. The major difference is the residency adjustment from the CES place of work concept, which is a count of jobs by industry location, to the LAUS measurement of persons employed according to the individual's residence. Other conceptual problems include adjustments for multiple job holders and noncovered employment, which is mainly accounted for by self-employed, unpaid family workers, private household, and agricultural employment.

The SESA administrative data base covering the insured unemployed for the time period containing the 12th day of the month is the primary mechanism for distributing the relative shares of unemployed persons among areas such as counties and labor areas. Adjustments to this system include factors to estimate unemployed entrants and reentrants to the labor force as well as individuals who have exhausted their unemployment insurance benefits. In order to provide data for sub-county levels, Census information is used as a benchmark.

The Current Population Survey data of households serves as a control for total employment and unemployment levels. In states that are covered directly under the CPS, the monthly CPS data estimates meet the reliability criterion for use as the official estimate. In the other states, annual average CPS meet the criterion with current monthly levels reflecting the indirect use of the CPS through a six month moving average ratio adjustment. Since the CPS is the official survey instrument for measuring labor force attachment in the nation, the standard definitions used in the survey for employed, unemployed, and not in the labor force also apply to the LAUS program.

2. Employment Service Potential (ESP)

The ESP project is an alternative source of information on labor accessions and separations made available under an experimental effort during the 1970's. It continues to operate in a number of states, provides estimates of the number of new hires, recalls, and separations of workers from establishments based on unemployment insurance records. This program analyzes individual worker information contained in the unemployment insurance tax reports submitted to state employment insurance agencies by establishments covered by the existing U.I. laws. The accessions data generated by these projects can be used to target job development and placement efforts of the state job services and other human resource agencies.

3. Occupational Projections - OES Matrix

This program is developed through a process which is generally referred to as the Occupational Employment Statistics (OES)/Matrix system. The projection process can be separated into three major components: (1) industry projections, (2) the OES staffing patterns or "matrix", which essentially consists of distributing industry employment according to each industry's occupational staffing patterns, and (3) estimates of replacement needs by occupations.

Industry employment is projected by analyzing past relationships between different industry sectors and the major variables determining the national, state, or local area economic climate. A national econometric model relates these variables to national employment trends over time. A number of different techniques can be used to project future employment. One such technique, known as the "manpower requirements approach," has tended to dominate the employment projections field in the U.S. The manpower requirements methodology is used to provide estimates of the number of workers in each occupation that will be "needed" in a given year (1990, 1995) to produce a given level and industrial composition of output.[19] The number and the occupational distribution of workers that will be "needed" in any given year is dependent on the desired level of the real Gross National Product of the nation and the specific types of goods and services demanded by final users, including domestic consumers, investors, government agencies, and foreign nations.

Data on the occupational staffing patterns of industries can be obtained from either household surveys, including the decennial national censuses, or from economic establishments. Collection of occupational staffing pattern data from economic establishments has a number of virtues, including greater accuracy in the classification of jobs, more timely information, and greater potential for identifying "emerging" occupations.[20] During the past decade, a statistical survey program known as the Occupational Employment Statistics programs has been used by the Bureau of Labor Statistics and most Employment Security Agencies to generate estimates of the occupational staffing patterns of industries in the nation, individual states, and substate areas.[21] Data on the occupational staffing patterns of all industries can be combined to construct an industry/occupation matrix. This matrix is a rectangular array of numbers representing data on the distribution of employment by occupation in each industry in a national, state, or local economy.

The outputs of the projection process are detailed short and long-term occupational employment projections. In addition to the data on projected occupational employment levels, annual average job openings due to growth and replacement are estimated by occupation. Projections of openings from the OES program consist of openings due to growth (the change in employment between the base year and the projection year) and openings due to replacement needs. The replacement estimates for states and local areas cover job openings from labor force separations due to death, retirement, disability, or temporary withdrawal for personal reasons. At the national level, replacement estimates are more broadly defined to include job transfers and all labor force separations, except deaths. Generally, long-term projections are updated every two to three years and are available for the nation, states, and selected substate areas.

The national, state, and local employment projections produced by the Bureau of Labor Statistics and the State Employment Security Agencies should be regarded as "conditional projections" rather than occupational forecasts. Unlike many employment forecasts which simply represent estimates based upon the informed judgment of the forecaster, employment projections are dependent on a number of key assumptions about the future size of the working-age population, the future labor force behavior of various demographic subgroups, labor productivity trends, the monetary and fiscal policies of the national government, and foreign trade developments.[22] If any of these assumptions are altered, the projected levels of employment by occupation will change.

4. Occupational Supply/Demand Systems

An occupational information system can be used to analyze the balance between projected job openings (demand) and jobseekers (supply) for specific occupations. The overall objective is to identify projected shortage and surplus occupations for use in career guidance, job search, and the planning of vocational training programs.

Both JTPA and the Vocational Education legislation call for the development of a system that includes both demand and supply data and recognize of the need for such a system as a supportive tool for a variety of user programs, i.e., those currently operated under JTPA. Implicit in this mandate is the understanding that such a system should use existing data collected by various state agencies and that such data must be brought together, organized, and presented in a manner to facilitate its application by human resource program planners and administrators of employment related training programs.

A primary objective of an OIS is to relate or interface the currently existing components to present quantitative supply/demand relationships and qualitative analyses of those relationships. It is probably this notion of bringing together in one data base both occupational employment projections that measure potential employment needs with information on the outputs of the training system; i.e., enrollments, completions, and placements from public and private secondary, post-secondary, and other appropriate programs that distinguishes the OIS concept from previous approaches to providing data to planners and administrators of occupationally-related training programs.

States have made tremendous strides in implementing OISs over the past few years; however, state occupational information systems are still evolving. A number of states are presently implementing such systems, while others are enhancing theirs, based on a year or two of initial use. An OIS can in the simplest sense be defined as the systematic compilation and dissemination of occupationally-related information. An OIS draws upon multiple sources of data to provide a common, standardized data base for use in program planning that is: (1) systematically organized; (2) comprehensive, in that it includes data on both occupations and on vocational/employment related programs within a single system/document; (3) tailored for use in planning; and (4) readily and easily accessible.

An OIS should be viewed as a system comprised of four basic types of information components. They are occupational demand, occupational supply, occupational characteristics, and complementary information. Each of these components contains a number of specific data elements as depicted in Exhibit 3-1. The center portion of the exhibit, "Occupational Information Base," lists the more significant types of data that might be included in an OIS. In addition, the extensions on either side of the center of the information base highlight two of the principal broad based user groups addressed by an OIS: (1) planners and administrators of vocational and employment related training programs and (2) persons engaged in career planning or exploration, guidance, or job search. The products of an OIS should be directly responsive to the needs of these two groups and can be categorized as supply/demand analysis products, and career information products. Because our emphasis is primarily on the use of information in the planning process, the focus of this presentation is on the former, i.e., supply/demand products.

The basis for the demand data is the occupational employment projections generated through the previously discussed OES/Matrix system. The occupational supply data are not as rigorously defined since the potential labor supply for a given occupation includes persons entering the labor force with occupation-specific training, the unemployed, and individuals currently employed with the skills allowing lateral or upward mobility. However, a useful indicator for measuring new entrants to occupational supply is the number of completers of occupationally specific training programs. These data are derived from several sources, including secondary and post-secondary program completion and follow-up information; degrees granted from institutions of higher learning by type of degree and program discipline; program completers from private vocational schools; enrollment and completer data from all registered apprenticeship programs; and Job Corps and JTPA information on enrollments and completions by vocational training programs.

A major advance in disseminating occupational data was made in 1984 with a micro computer by NOICC. In 1984-85, this system will be implemented in 15 states with an additional 10 to 15 states considering implementation in 1985-86.

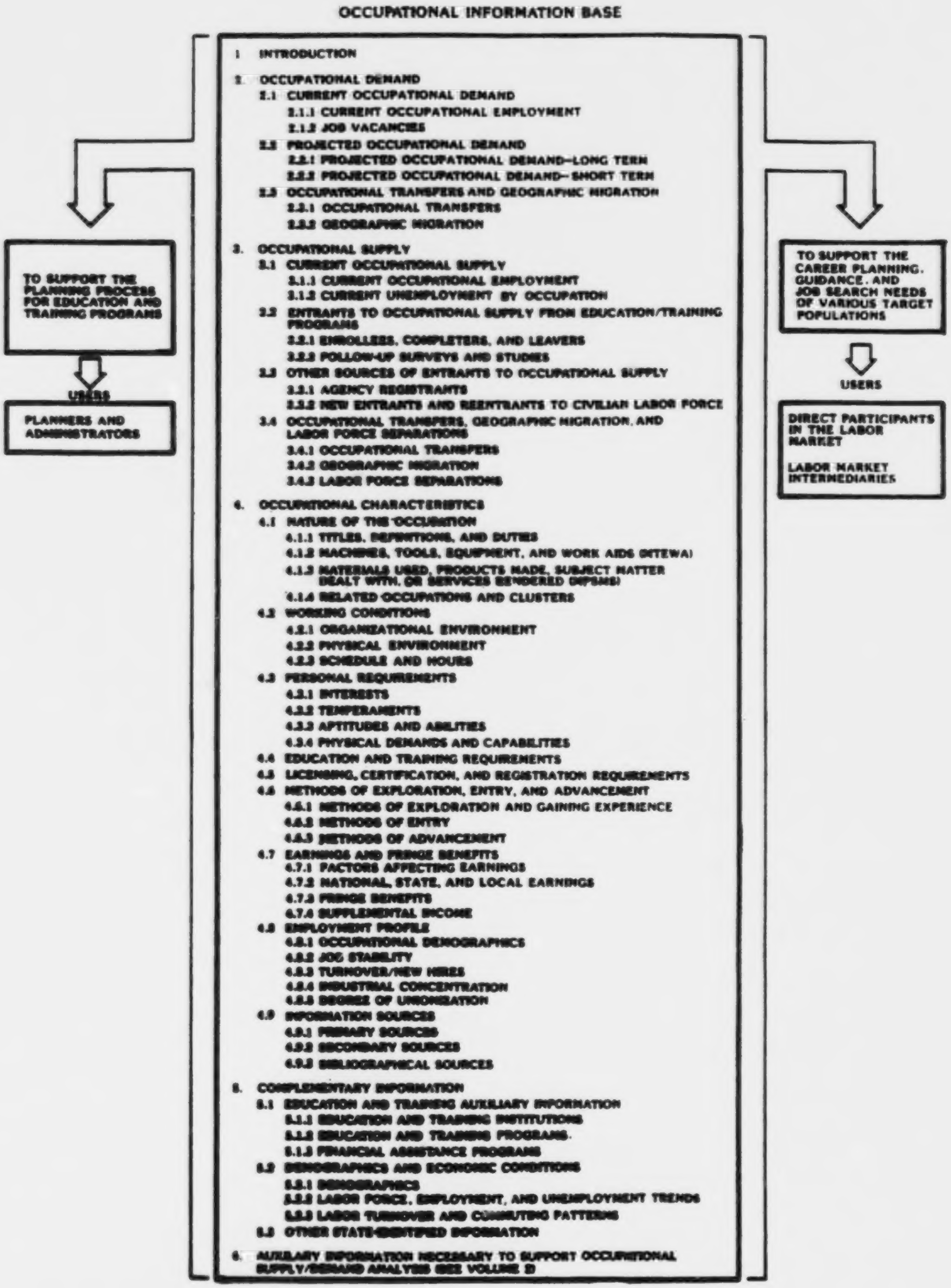
Labor Market and Occupational Information Applications and Issues

As the preceding section indicates, data for the labor market and occupational information programs are drawn from diverse sources and the outputs are designed to serve a wide range of information needs. Therefore, in order to use and apply LMI most effectively, it is necessary for the user to appreciate the applicability of the various data-sets to particular problems or situations.

There are five main, often interrelated, factors to be considered in deciding which LMI products are most appropriate for particular situations. These are:

- GEOGRAPHIC DETAIL - The frequency and quantity of LMI varies by area.

Exhibit 3-1
OIS Information Base and the Two Major Uses of Occupational Information


TO SUPPORT THE PLANNING PROCESS FOR EDUCATION AND TRAINING PROGRAMS
USERS
PLANNERS AND ADMINISTRATORS
TO SUPPORT THE CAREER PLANNING, GUIDANCE, AND JOB SEARCH NEEDS OF VARIOUS TARGET POPULATIONS
USERS
DIRECT PARTICIPANTS IN THE LABOR MARKET
LABOR MARKET INTERMEDIARIES

OCCUPATIONAL INFORMATION BASE

1. INTRODUCTION

2. OCCUPATIONAL DEMAND
   2.1 CURRENT OCCUPATIONAL DEMAND
      2.1.1 CURRENT OCCUPATIONAL EMPLOYMENT
      2.1.2 JOB VACANCIES
   2.2 PROJECTED OCCUPATIONAL DEMAND
      2.2.1 PROJECTED OCCUPATIONAL DEMAND—LONG TERM
      2.2.2 PROJECTED OCCUPATIONAL DEMAND—SHORT TERM
   2.3 OCCUPATIONAL TRANSFERS AND GEOGRAPHIC MIGRATION
      2.3.1 OCCUPATIONAL TRANSFERS
      2.3.2 GEOGRAPHIC MIGRATION

3. OCCUPATIONAL SUPPLY
   3.1 CURRENT OCCUPATIONAL SUPPLY
      3.1.1 CURRENT OCCUPATIONAL EMPLOYMENT
      3.1.2 CURRENT UNEMPLOYMENT BY OCCUPATION
   3.2 ENTRANTS TO OCCUPATIONAL SUPPLY FROM EDUCATION/TRAINING PROGRAMS
      3.2.1 ENROLLEES, COMPLETERS, AND LEAVERS
      3.2.2 FOLLOW-UP SURVEYS AND STUDIES
   3.3 OTHER SOURCES OF ENTRANTS TO OCCUPATIONAL SUPPLY
      3.3.1 AGENCY REGISTRANTS
      3.3.2 NEW ENTRANTS AND REENTRANTS TO CIVILIAN LABOR FORCE
   3.4 OCCUPATIONAL TRANSFERS, GEOGRAPHIC MIGRATION, AND LABOR FORCE SEPARATIONS
      3.4.1 OCCUPATIONAL TRANSFERS
      3.4.2 GEOGRAPHIC MIGRATION
      3.4.3 LABOR FORCE SEPARATIONS

4. OCCUPATIONAL CHARACTERISTICS
   4.1 NATURE OF THE OCCUPATION
      4.1.1 TITLES, DEFINITIONS, AND DUTIES
      4.1.2 MACHINES, TOOLS, EQUIPMENT, AND WORK AIDS (MTEWA)
      4.1.3 MATERIALS USED, PRODUCTS MADE, SUBJECT MATTER DEALT WITH, OR SERVICES RENDERED (MPSMS)
      4.1.4 RELATED OCCUPATIONS AND CLUSTERS
   4.2 WORKING CONDITIONS
      4.2.1 ORGANIZATIONAL ENVIRONMENT
      4.2.2 PHYSICAL ENVIRONMENT
      4.2.3 SCHEDULE AND HOURS
   4.3 PERSONAL REQUIREMENTS
      4.3.1 INTERESTS
      4.3.2 TEMPERAMENTS
      4.3.3 APTITUDES AND ABILITIES
      4.3.4 PHYSICAL DEMANDS AND CAPABILITIES
   4.4 EDUCATION AND TRAINING REQUIREMENTS
   4.5 LICENSING, CERTIFICATION, AND REGISTRATION REQUIREMENTS
   4.6 METHODS OF EXPLORATION, ENTRY, AND ADVANCEMENT
      4.6.1 METHODS OF EXPLORATION AND GAINING EXPERIENCE
      4.6.2 METHODS OF ENTRY
      4.6.3 METHODS OF ADVANCEMENT
   4.7 EARNINGS AND FRINGE BENEFITS
      4.7.1 FACTORS AFFECTING EARNINGS
      4.7.2 NATIONAL, STATE, AND LOCAL EARNINGS
      4.7.3 FRINGE BENEFITS
      4.7.4 SUPPLEMENTAL INCOME
   4.8 EMPLOYMENT PROFILE
      4.8.1 OCCUPATIONAL DEMOGRAPHICS
      4.8.2 JOB STABILITY
      4.8.3 TURNOVER/NEW HIRES
      4.8.4 INDUSTRIAL CONCENTRATION
      4.8.5 DEGREE OF UNIONIZATION
   4.9 INFORMATION SOURCES
      4.9.1 PRIMARY SOURCES
      4.9.2 SECONDARY SOURCES
      4.9.3 BIBLIOGRAPHICAL SOURCES

5. COMPLEMENTARY INFORMATION
   5.1 EDUCATION AND TRAINING AUXILIARY INFORMATION
      5.1.1 EDUCATION AND TRAINING INSTITUTIONS
      5.1.2 EDUCATION AND TRAINING PROGRAMS
      5.1.3 FINANCIAL ASSISTANCE PROGRAMS
   5.2 DEMOGRAPHICS AND ECONOMIC CONDITIONS
      5.2.1 DEMOGRAPHICS
      5.2.2 LABOR FORCE, EMPLOYMENT, AND UNEMPLOYMENT TRENDS
      5.2.3 LABOR TURNOVER AND COMMUTING PATTERNS
   5.3 OTHER STATE-IDENTIFIED INFORMATION

6. AUXILIARY INFORMATION NECESSARY TO SUPPORT OCCUPATIONAL SUPPLY/DEMAND ANALYSES (SEE VOLUME 2)

Source: NOICC, Occupational Information System (OIS) Handbook, 1981.

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- FREQUENCY - Information is developed at different time intervals and release schedules vary among states.

- MEASUREMENT (AND INTERPRETATION) - Some LMI represents a universe count whereas other information may be more limited in scope. Also, the data "sources" may differ, i.e., household data vs. establishment data.

- ACCESSIBILITY - There are different levels of "availability" of LMI. Most needed information is provided in standard reports and tables which are readily accessible to users. Other information may be regularly produced, but receive limited publication. Still, other data can be retrieved or developed only with an extensive commitment of time and resources. Confidentiality requirements prohibit the use of some micro-data records that identify specific individuals or establishments. Laws that govern the release of data vary substantially from state to state.

- CLASSIFICATION SYSTEMS - The taxonomy used to code the data. Data that are collected with different coding systems may give misleading results unless steps are taken to adjust the data to a consistent coding framework. Code crosswalks are available to facilitate data integration.

The above discussion summarizes in a general way key factors that should be considered in working with LMI. In the discussion that follows, the meaning of these issues for the various LMI components will be described more concretely. The discussion will be oriented to the needs of local human resource planners.

1. General Economic Trends

Although national data do not necessarily reflect developments within any specific state and local areas, it is important for planners to be aware of developments in the national economic environment. The planner's perception of the local economy is certainly incomplete and perhaps misleading without reference to broader economic trends. Most national trends will be evident to some degree in local economies once adjustment is made for particular local factors. This is true of both long-term and short-term trends. Even if an area appears recession-proof or alternatively chronically depressed, national business cycle fluctuations will likely affect local growth patterns. Longer term trends, such as the increase in women's labor force participation or growth in service employment, are also likely to appear locally.

From a national business cycle standpoint, the most comprehensive economic and labor market indicators are the Gross National Product (GNP) data and the U.S. unemployment rate. If the analyst wishes to anticipate economic developments, the Index of Leading Indicators and data on the money supply and interest rates will be useful. Many economic projections are prepared by government agencies, private forecasting firms, business economists, and university economists. Such projections are periodically compiled and published in the business press, particularly near the end of the year when there is wide interest in the economic outlook for the coming year.

Of course, these forecasts are not always accurate and there are frequently major differences of opinion among forecasters. Nevertheless, these economic projections can be useful, particularly if they are treated as a broad guide to the employment outlook. For most local purposes, forecast accuracy within a broad band is all that is required. It is not vital that the rate of growth in real GNP or that the unemployment rate be projected accurately to within a tenth of a percentage point. It is sufficient if the projection accurately predicts a recession and its length and severity. Alternatively, if the outlook is for economic expansion, it is useful to know if strong or weak growth is likely and the general areas of growth/decline.

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Planners may also wish to focus on industries that are prominent in their economy. Changes in activity in such industries can have major implications for the local unemployment situation. A wealth of information on sales, production and other activity measures are available for most industries from federal statistical bureaus, private data-gathering firms, business associations, and the "trade" press. For example, in a local economy heavily dominated by manufacturing, the analyst may wish to track motor vehicle sales or steel shipments or semiconductor production. The analyst in a farming area may wish to monitor the agricultural output series. In a resort area, tourism data would be useful. In addition, particularly in the larger metropolitan areas, local banks, utilities, universities, or other institutions may publish newsletters discussing key indicators of local business activity. The focus of the newsletters prepared by the SESAs is on local employment context.

Monitoring this broad economic information in detail is not necessary. It would be counter-productive, in fact, to get heavily involved in the details of national economic series analysis. The important point is to have some "sense" of where the economy is going and its relationship to employment and training needs and opportunities at the local level.

2. Labor Force Developments

Labor force data are a core element of a national, state, and local LMI system. Traditionally, labor force data have been collected to serve two primary functions.[23] First, they provide measures of the effective available labor supply, ie., how many individuals are either currently working or actively seeking work. Second, they provide measures of the degree to which the labor force is utilized or under-utilized. During the past decade, state and local labor force data were used to meet a third major need, that of allocating federal program monies to state and local areas. State and local labor force data have served as key elements of allocation formulas for employment and training programs, public works programs, and economic development programs.[24]

Labor force data are developed for the nation by the U.S. Bureau of Labor Statistics and for local areas by the SESAs on a monthly basis. As noted in the previous section, data for the nation and the 11 largest states are directly collected through the Current Population Survey. The data for the other states are produced by the so-called "Ratio to Moving Average" method. Data for local areas are developed through the LAUS program.

A major strength of the LAUS/CPS program is that it produces data that are uniform and consistent through time and across areas. This data base has both analytic and administrative uses. Unemployment rates and levels are used as a factor in the formulae for distributing JTPA and other federal funding. From an analysis perspective, the LAUS employment and unemployment estimates can be used to track an area's labor market performance over time and compare the area's employment situation to other areas, the state, and the nation. For multi-county or multi-city SDAs, the LAUS estimates can be a useful tool for appraising unemployment problems at the sub-SDA level.

The monthly LAUS estimates for states and areas typically provide estimates of the labor force, employment, unemployment, and the unemployment rate. The national CPS, since it is based on a large monthly sample of 60,000 households, provides a wealth of detailed information. The employment and unemployment data are extensively detailed and cross-tabulated by a broad range of social, economic, and demographic characteristics. While this information is national in scope, it can have some applications to local situations if used creatively. Basic national trends in labor force characteristics are also likely to appear in some form in local areas. Local labor market conditions may magnify or reduce a trend and the overall impact will vary from area to area, but the basic trend is still likely to be visible. This means that, in the absence of "hard" current information, the national data can be extrapolated to local areas. This can range from simply drawing some inferences about labor market trends to building explicit, quantitative models for local areas. Such models project national trends to local areas by explicitly adjusting for the important differences between the local and the national labor markets. Generally, this involves adjusting for differences in levels, structural characteristics, growth patterns, and cyclical effects. These models, which combine local LMI, including Census data, with national information, are powerful tools for providing localized information on a current basis. In fact, this approach is used by many SESAs to develop some of the key labor force information, as well as other data, published in the SDA-specific Annual Planning Information (API) Reports.

In addition to the national data, detailed annual average data for states and major metropolitan areas are tabulated from the CPS. This information has the same applications as the national data. Less detail is available, however, and the data for selected subgroups, such as minority teens, may be problematic because of the limited sample size in some states.

Labor force data are frequently considered as data representative of the supply side of state and local labor markets. Labor force data do measure the labor force behavior of working-age individuals and can be used to provide information on their labor force status. The labor force concepts underlying these data are not, however, synonymous with the concept of labor supply as used by labor economists. In economic theory, labor supply is a functional relationship that relates the number of hours an individual (or group of individuals) is able and willing to work at alternative real hourly wage rates.[25] Labor force data by themselves do not represent such labor supply behavior. They have, however, been used to develop and test models of labor force participation and labor supply behavior.[26]

3. Industry Employment

Since data on the structure of job opportunities are frequently collected directly from employers, employment data for industries and occupations are frequently referred to as data on the "demand side" of the labor market. Such measures are not synonymous with the "demand" concept used in economic theory since labor demand is a functional relationship that relates the number of workers an employer is willing to hire at each real wage.

The SESAs publish monthly estimates of establishment employment by industry for local areas. These estimates are derived from the Current Employment Statistics (CES) program. The number of local areas for which CES data are developed varies widely from state to state, but at a minimum, estimates are computed for the state, SMSAs, and a balance-of-state area. In addition to overall industry employment, the CES program provides information on the hours and earnings of manufacturing production workers and the number of production workers. Quite detailed information is available for states and the largest SMSAs. For smaller areas, data are presented for broad industry groups, with some additional detail for the manufacturing sector.

The CES data base has three important characteristics. First, it is designed to provide up-to-date information profiling local employment developments in some depth. Second, lengthy and consistent historical CES series are maintained. Third, the CES series is regularly published and readily available. The CES series, therefore, can be used to measure the impact of recessions and economic recoveries on the area's industrial structure. The local analyst can examine the industry series over time to determine which are the growth industries and which are lagging. Since CES series are available for a broad range of local areas, all states, and the nation, the local industry distribution and trends can be studied in relation to national and state patterns for forecasting and other purposes.

While the CES data base has many useful properties, more detailed planning information may be required or the geographic coverage may not be consistent with local boundaries. As noted earlier, the CES covers SMSAs and will in some states be available for Labor Market Areas (LMAs). The SMSAs are defined by the U.S. Office of Management and Budget and the LMAs by BLS. The rationale for covering the SMSAs and LMAs with the CES and other statistical series is that these areas represent integrated economic units of labor market activity and need to be treated as such for analytic and statistical purposes. The SMSAs and LMAs consist of individual counties or combinations of counties forming a single labor market as shown by workers' commuting patterns. The SMSA and LMA concept is recognized in the basic JTPA legislation which states that one criterion in defining SDAs is that they are "consistent with Labor Market Areas or Standard Metropolitan Statistical Areas."

In practice, however, many local administrative entities, including SDAs, are not defined on SMSA or LMA lines. In those cases where geography has a relatively small impact on the data, the SMSA or LMA series can serve as a useful "proxy" for the SDA. Sometimes, an SDA will be composed of a number of LMAs, in which case, the LMA series can be aggregated to the SDA level. There still remain a large number of cases, however, where the SDAs cut across SMSA/LMA lines in such a way that the SMSA/LMA information may not be representative of the local situation.

In those cases and also where the CES trend series do not provide sufficient industry detail, the ES-202 report becomes an important resource. The ES-202 covers employment and payrolls of nearly all employers of one of more workers. These employers are mandated by U.I. law to report this information quarterly. Generally, this information is tabulated by county at the two- or three-digit SIC level.

Since the ES-202 shows industry employment in great detail, it can be used for much more in-depth analysis of local industry structure and trends than is feasible with the CES. Also since the ES-202 is tabulated by county, it can usually be configured to match SDAs geographically. (Exceptions are SDAs that follow city rather than country lines.)

Access to and use of the ES-202, however, can involve a substantial commitment of time and resources. This is particularly true if extensive historical, rather than only "point-in-time," information is required and if a large number of counties is involved. Unlike the CES, the ES-202 is not regularly published and readily available in its entirety. The reasons for this are limited use, extensive geographic and industrial detail, and confidentiality. As with most data bases, the volume of data tends to work against ease of access. The ES-202 data base is essentially continuous for the period 1974-1984. Although data are available for earlier years, major changes in coding and coverage in the early 1970s cause a "break" in the ES-202 series.

Another source of detailed industry data by county is the County Business Patterns (CBP) report published by the Bureau of Economic Analysis of the U.S. Department of Commerce. This information is based on the Social Security tax reports of employers. Employment, payrolls, and the distribution of firms by size are presented by SIC for March of each year. Very detailed data are published for populous counties with much more aggregated information provided for smaller areas. The CBP is a very convenient and accessible source of detailed industry information. The major drawback of the CBP is the two-year lag in publication of the data. Also, the amount of detail varies from county to county, so summing the data for multi-country areas may be a problem.

4. Occupational Information

The primary source of occupational employment information is the OES/Matrix program. This program is designed to provide very detailed information on the occupational employment outlook for use in career guidance and planning employment and training programs. Outputs from the OES/Matrix program show base year employment, projected employment in the target year, and the estimated number of average annual job openings. Job openings consist of new jobs expected to be created by growth--or job loss due to projected employment declines--plus openings likely to be created by mortality and labor force withdrawal.

This information provides local planning staff with an in-depth view of their area's occupational structure and likely trends. The projections are a key element in assessing the employment potential of different occupations and making an informed judgment on which training programs to provide. The projections show which occupations are expected to grow most rapidly and which are trailing or declining. The projections also provide estimates of the number of job openings likely to be created in each occupation. The number of future job openings is a function of the size of the occupation and the demographic and age structure of the workers in the occupation in addition to projected employment growth.

In evaluating employment prospects, it is important to consider the level of job openings as well as the growth rate of the occupation. Sometimes, there is a preoccupation with growth in ranking occupations for training. This can be misleading since some slower-growth occupations may be generating a large number of job openings, or, alternatively, only a small number of workers may be employed in high-growth occupations.

It is also important to properly interpret the projections for cyclical occupations. This is a particular concern in areas dominated by highly cyclical industries. Most employment projection scenarios assume that the base year will be "normal" or "average" in business cycle terms. If, on the other hand, the base year of the projections is at or near the bottom of the business cycle some occupational growth rates will show an artificial upward tilt. The occupations most often affected are in the manufacturing, construction, trucking, real estate, and some mining sectors. In slow growth areas, re-employment of laid-off workers, rather than new jobs, will account for most of the employment increase in the cyclical occupations. There are other important considerations in analyzing occupations for training. These will be discussed in the section on occupational supply/demand below.

The occupational projections are intended for users interested in specific occupations. Employment and training staffs, however, may approach the training question from an industry perspective. For example, they may wish to research the training implications of a rapidly growing local industry. Since training programs are largely occupation, rather than industry, oriented, the logical course is to "translate" the industry into occupational terms. This can be done through use of the OES survey and matrix. Most states publish the OES survey results, showing occupational staffing patterns for industries at the two-digit SIC level. This allows the analyst to see which occupations are likely to be affected by developments in a particular industry. Some states also publish the more detailed three-digit SIC staffing patterns. Even where not published, the detailed staffing information will be available upon request, allowing for confidentiality restrictions. In addition to employment and training applications, the industry/occupation staffing patterns are also useful for local industry analysis and economic development planning.

At a minimum, states will develop occupational projections for the state and the largest SMSAs. Other states develop projections for numerous substate areas covering SMSAs, economic regions, or planning districts. The areas for which the occupational projections are developed may not be consistent with SDA boundaries for two reasons. The occupational projections are intended for a diverse set of users dealing with varying geographic areas. Secondly, the OES/Matrix projections process is quite complex and involves the production, analysis and integration of large volumes of data. As a result, the SMSAs or some other set of predefined areas tend to become the geographic focus for the projections. Such areas will cover much of the state's population, and the data sets required for the projections will be more readily available. This is particularly true of the lengthy time series required for the econometric forecasts of industry employment. These are important considerations bearing on the timely and cost-efficient delivery of the occupational employment projections.

If an area for which occupational projections exist accounts for the bulk of an SDA's employment and population, the projections can reasonably be applied to SDA information needs. Sometimes, far too much is made of geographic differences between planning and labor areas that are of minor consequences for planning purposes. Even where the SDA includes several counties that are not in the SMSA, if the labor force of these counties is small relative to the SMSA as a whole, the occupational employment patterns will not be strongly affected by the inclusion of the additional counties. Pursuit of geographic exactness in such cases can result in an inefficient use of time and resources.

SDAs which are "subsets" of SMSAs, often the case in large metropolitan areas, can refer to the projections for the broader area. In other cases, local area occupational forecasts will not be available and it will be necessary for local staff to rely on balance-of-state or statewide projections. Information from the decennial Census can be used to profile a specific area's occupational structure in 1980. Obviously, this is not projection information, but it can be analyzed to determine which occupations are most important in an area. Used in combination with the most relevant area projections, it can provide useful planning information.

5. Occupational Supply/Demand

A training program's chances of success are affected by occupational supply as well as demand factors. Just as companies need to assess the production capabilities of competitors as well as the demand for their product in carrying out internal production planning, it is necessary for employment and training planners to look at both the supply and demand for workers. Employment growth and projected job openings are important guides to the allocation of training resources and, in the long run, supply and demand tend to converge. Nevertheless, short term supply/demand imbalances can arise in which there is a shortage of workers for high demand occupations and an excess of training in occupations with relatively lower demand.

To provide the above types of planning information to the education and training community, most states have developed occupational supply/demand reports. Conceptually, the comparison of occupational supply and demand appears straightforward. In practice, however, the process is complex and this has slowed development of this type of analysis. Complexities include the diversity of supply/demand coding systems, overlaps and gaps in the many data bases involved, differences in the level of training provided by different institutions, and issues of labor mobility and alternative access routes into different occupations. With the assistance of NOICC, many of these issues are being resolved and much progress has been made in constructing integrated occcupational data systems that merge the broad range of information required for supply/demand analysis.

As full-fledged Occupational Information Systems (OIS) are implemented, a broad array of localized occupational supply/demand information will become available. The state and local reports present projected openings from the OES/Matrix system and the supply of trainees from the various public and private educational institutions. They will also include other supply/demand indicators, as they become available, such as the ratio of Employment Service job orders to applicants from the ESARS data base. A considerable amount of national, state, and local supply/demand information already exists that can be applied to training decisions. The U.S. Occupational Outlook Handbook uses broad descriptive phrases to characterize the national supply/demand situation by occupation. The Occupational and Training Needs bulletins provide national supply and demand data and interpretation of this information.

Local planning staff should examine this information at whatever level of geographic detail is available or appropriate to determine if it contradicts or is in accord with the local occupational demand trends. Localized demand data is more likely to be available at this time than a local supply/demand analysis. ESARS data may also be published or otherwise available for local areas. Since the ESARS data cover a larger proportion of total job-seekers than of total job slots, this information should be used only as a crude indicator. That is, the actual levels of applicants and orders are less significant than whether the ratio of the two is better or worse than in other occupations or some average of occupations. It is important that the number of applicants and orders be sizeable, however, for the ratios to be meaningful.

Another important, and potentially accessible, local information item is the placement record of the programs under consideration. While the quality of follow-up information may vary by institution, an attempt should be made to ascertain a program's placement performance. The SDAs or other agency's own management information system may be helpful in this regard. The placement record may not by itself be a completely reliable guide for future efforts since the economic environment, the mix of enrollees, and other factors may be changing. Nevertheless, placement is typically the only information on the actual performance of a program at the local level. Reliable placement measures can allow the SDA to differentiate between programs offered by various institutions. The SDAs management records can also indicate, for programs that have been operated previously, if these programs "work" for JTPA trainees. While the labor market data may indicate that employment prospects are favorable in a particular occupation, the JTPA training experience may not be favorable for a variety of reasons.

Labor Market and Occupational Information Products and Delivery Systems

The availability of labor market information products varies from state to state. The type of information available is dependent on the level of data collection, synthesis, analysis, and dissemination efforts that prevail in the state. For example, the existence of federal/state cooperative programs, i.e., LAUS/CES, assures the availability of a certain level of detailed employment/unemployment data at the state and local level. However, the availability of detailed occupational or wage information will vary from state to state, depending on the types of federal and/or state programs in operation.

The labor market information program at the state level is generally the responsibility of the SESA although, in some instances, a Governor may select another organization to oversee and manage the program. SESAs are responsible through their Research and Analysis units for the collection, analysis, and dissemination of labor market information. A primary result of the data-collection activities of the SESA is a series of LMI publications. Some states have developed computerized delivery systems for LMI elements and other states are moving in this direction. The state's own needs and priorities, in addition to primary data user needs, determine the exact nature and availability of labor market publications and other related information. The folllowing list indicates publications generally available and provides a brief description of their contents.

The ANNUAL PLANNING INFORMATION (API) is designed to provide information (both data and analysis) which can be used by human resource agency planners in developing programs and job training plans for the forthcoming fiscal year. Reviews of employment in the previous year, as well as projections for the forthcoming program year, are included. Two major areas of emphasis are industrial and occupational employment trends and outlook i.e., demand side information, and analysis and projections of the population, labor force, and various target groups, primarily the unemployed and the disadvantaged i.e. supply information.

LABOR MARKET INFORMATION NEWSLETTERS provide a monthly summary of labor market conditions in each area and state. The focus is on significant changes in the size of the labor force, employment, and unemployment occurring during the month. LMI newsletters provide both narrative analysis and tabular information on current conditions and related information, highlighting significant changes in conditions occurring during the month and year.

OCCUPATIONAL LMI - This information is published as separate reports which identify current and projected occupational employment needs, shortages, and surpluses for use in counseling, the planning of training programs, and the development of vocational education plans. These SESA reports usually are available in the following five categories:

- SHORT-TERM SUPPLY/DEMAND ANALYSIS - These analyses are prepared quarterly for most states and SMSAs. The quarterly supply/demand analysis utilizes various administrative data (ESARS data on job openings and job applicants, U.I. data on the insured unemployed, Job Bank data, and ESP data on labor turnover), as well as data from such cooperative statistical programs as OES and CES.

- LONG-TERM OCCUPATIONAL PROJECTIONS - Projections data are published for the state and for as many SMSAs as possible. Such projections need not be published every year, but only after a cycle of updates has been completed. The long-term projections are generally produced every other year.

- OES SURVEY DATA - Occupational staffing pattern data for industries are published annually by those states participating in the survey portion of the OES program. The data usually cover the state and as many SMSAs as possible and provide a description and analysis of the current staffing patterns of the surveyed industries.

- WAGE INFORMATION - Wage data are published for the state and as many SMSAs as possible. The publications contain data from wage surveys carried out by the SESAs or may represent a wage bibliography which summarizes the sources of wage data available for the state and SMSAs.

- JOB SEARCH INFORMATION (JSI) - Job search information of various types is disseminated on a regular basis. Those SESAs in states having Career Information (Delivery) Systems usually prepare and disseminate this information on a collaborative basis to the maximum extent possible.

SPECIAL WORKER GROUPS - Depending on a state's needs and priorities, separate LMI reports are prepared for each special worker group. Special worker groups include youth, women, veterans, minorities, older workers, handicapped, etc. The reports include characteristics data on age, race, sex, employment, education, and occupational status. Specific needs for employment program services and problems and barriers to employment are also covered.

LABOR MARKET RESEARCH - The SESA, depending on the state's needs and priorities, may undertake specific research projects. Examples of the types of research projects which a SESA might consider include: worker commuting patterns, industrial structure analysis, LMI requirements for JTPA, and labor market impact studies.

AFFIRMATIVE ACTION INFORMATION - This information is designed to assist employers in developing an affirmative action plan. The bulk of data in the packages are from the 1980 Census, while other data are updated annually from Employment Security sources.

OCCUPATIONAL INFORMATION SYSTEMS AND RELATED PRODUCTS - One item appearing in more and more states is a supply/demand product or computerized system that is part of an OIS. As noted before, these reports/systems interface both occupational demand and supply from institutional training programs and bring together a number of data and information elements in a format tailored for planners and administrators of human resource programs, especially those involved in employment related training programs. Many states have or are in the process of adopting a microcomputer version of an OIS developed by NOICC. This system provides users access to information on training programs directly or allows planners to input selected search criteria such as employment growth, number of job openings, placement rates, job service openings, etc., and the system then selects the occupations or training programs that meet these criteria. Whether a state has developed its own system or whether it has adopted and tailored the micro-OIS to meet its own needs, planners should be aware of such systems as a major source.

The publication, Vocational Preparation and Occupations, known as "VPO" provides crosswalks between training programs and occupational coding structures. For example, projections data for OES occupations can be matched with specific instructional programs classified on the basis of CIP codes. Other publications enable OES occupations to be matched to SOC and DOT occupations, thereby permitting users of career information to obtain access to a rich body of information on the characteristics of occupations, including education and training requirements, physical demands, and working conditions.

TECHNICAL ASSISTANCE SERVICES - The SESAs provide a range of technical assistance services that are designed to provide data users with additional expertise to facilitate the utilization and analysis of labor market information. With the enactment of the JTPA legislation in 1982, labor market planning information requirements have been greatly emphasized. In addition, the information to satisfy planning needs is drawn from many diverse sources. These developments have greatly enhanced the role of SESA analysts in providing technical assistance. Technical assistance may consist of individual consultation, group workshops, or technical assistance guides.

Summary of Labor Market Information Sources

Table 3-1 depicts the specific types of labor market and occupational information generally available in each state. The information in this table is divided into nine major data element categories. This table is not intended to provide an exhaustive list of labor market information, but represents those data elements most frequently used in the human resources planning process. For each data element, information is provided on its availability in terms of geographic coverage and timing. Data accessibility is reflected in the title of the publication or the publishing/data-disseminating agency. Data sources other than those generated by the SESA are also represented . In addition, the data collection program from which the information has been generated is referenced to indicate potential data limitations.

Table 3-1
Sources of Labor Market Information

DATA ELEMENT	GEOGRAPHIC COVERAGE	TIMING	PUBLICATION	SOURCE	AGENCY
1. Labor Force Status					
A. Civilian Labor Force, Employment, Unemployment, Rate	Nation	Monthly/Annual	Employment and Earnings BLS Newsletter	CPS	Bureau of Labor Statistics (BLS)
	CPS States	Monthly/Annual	Employment and Earnings BLS Newsletter	CPS	BLS
	State, LMA City, SDA	Monthly/Annual	SESA Newsletter, Data Series, Employment and Earnings (States, major (LMA))	LAUS	State Employment Security Agency (SESA)
	All Areas	Decennial 1980	Census Reports/Tapes	Census	Census Bureau
2. Labor Force, Employment, Unemployment, Characteristics (Age, Race, Sex)	Nation	Monthly/Annual	Employment and Earnings BLS Newsletter	CPS	BLS
	All States, 30 Largest LMAs and Central Cities	Annual	Geographic Profiles	CPS	BLS
	LMA SDA	Annual	Annual Planning Information (API) Affirmative Action	SESA Estimating, Projection Models	SESA
3. Unemployment Detail					
A. Industry/Occupation	Nation	Monthly/Annual	Employment and Earnings	CPS	BLS
	All States, 30 Largest LMAs and Central Cities	Annual	Geographic Profiles	CPS	BLS
	All Areas	Decennial 1980	Census Tapes	Census	Census Bureau
	State, LMA, SDA	Monthly	Varies From State-to-State	UI Data	SESA

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Table 3-1 (Continued)
Sources of Labor Market Information

DATA ELEMENT	GEOGRAPHIC COVERAGE	TIMING	PUBLICATION	SOURCE	AGENCY
3. Unemployment Detail (Cont.)					
B. Sources for Unemployment	Nation	Monthly/Annual	Employment and Earnings	CPS	BLS
	All States, 30 Largest LMAs and Central Cities	Annual	Geographic Profiles	CPS	BLS
C. Duration of Unemployment	Nation	Monthly/Annual	Employment and Earnings	CPS	BLS
	All States, 30 Largest LMAs and Central Cities	Annual	Geographic Profiles	CPS	BLS
	State	Monthly	ES-203	UI Data	SESA
4. Employment By Industry	Nation, State Major LMA	Monthly	Employment and Earnings, (Nat'l) SESA Data Series (State, LMA)	Current Employment Statistics (CES)	BLS, SESA
	State, County	Quarterly	Selected Industry Info. Available on request	ES-202	SESA
	County	Annual (Periodic)	County Business Patterns	Tax Info. and Census	Department of Commerce
	All Areas	Decennial 1980	Census Reports	Census	Census Bureau
5. Occupational Information					
A. Occupation (Current)	National	Monthly/Annual	Employment and Earnings	CPS	BLS
	All States, 30 Largest LMAs and Central Cities	Annual	Geographic Profiles	CPS	BLS
	State	3 Year Cycle	OES Reports	Occupational Employment Statistics Survey (OES)	SESA
	All Areas	Decennial 1980	Census Report	Census	Census Bureau

Table 3-1 (Continued)
Sources of Labor Market Information

DATA ELEMENT	GEOGRAPHIC COVERAGE	TIMING	PUBLICATION	SOURCE	AGENCY
5. Occupational Information (Cont.)					
B. Occupational Projections	State, Major LMA	Periodic	Varies from state to state	Ind/Occ. Projections Model (OES)	SESA
	Nation	Periodic	1984-85 Occupational Outlook Handbook (Projections to 1995)	Ind/Occ. Projections Model	BLS
C. Occupational Supply/Demand	State, Major LMA, SDA	Periodic	Occupational Supply/Demand Report Information Varies From State to State	Occupational Projections and Administrative Data Bases	SESA
			OIS Interactive and batch mode systems and published reports	Occupational Projections, Training Program Information, Other Related Information from Administrative Data Bases	SOICC
	Nation	Every Two Years	Occupational Projections and Training Data	CPS/OES, Administrative Data	BLS
D. Job Openings (Filled and UnFilled)	State, LMA, SESA Reporting Districts, SDA	Monthly	ESARS-Table 7 (Industry) 96 (Occupations)	Job Bank	SESA
6. JTPATarget Groups	State, SDA	Annual	Annual Planning Information Report (API)		SESA
A. Econ. Disadvantaged			API	State Welfare Agency, ESARS, Census	SESA
B. Handicapped			API, Census, Institutional Reports	Census, Dept. of Rehabilitation	SESA
C. Veterans			API, Institutional Reports	Veterans Admin.	SESA
D. High School Dropouts			API, Institutional Reports	Dept. of Education, Census	SESA

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Table 3-1 (Continued)
Sources of Labor Market Information

DATA ELEMENT	GEOGRAPHIC COVERAGE	TIMING	PUBLICATION	SOURCE	AGENCY
E. Offenders			API, Institutional Reports	Dept. of Corrections	SESA
F. Welfare Recipients			API, Institutional Reports	DSS, Census	SESA
G. Older Workers			API	Census, CPS, SESA, Estimating, Projection Models	SESA
H. Dislocated Workers			API	SESA Adm. Data	SESA
I. Displaced Homemakers			API	SESA Methodology	SESA
7. Population Characteristics and Projections (Age, Race, Sex)	State, LMA, SDA	Decennial 1980	Census Reports	Census	Census Bureau
	State, LMA, SDA	Annual	API	SESA Estimating, Projection Model	SESA
8. Migration-Place of Work/Residence	County	Decennial 1980	API Reports	Census	Census Bureau SESA
9. Wage Rates					
A. Industry	County	Quarterly	Selected Industry Info. Available Upon Request	ES-202	SESA
	State, Major LMAs	Monthly	SESA Data Series Newsletters	CES	SESA
	State, LMA, SESA Reporting District, SDA	Monthly	ESARS Table 96	Job Bank	SESA
B. Occupation	LMA	Periodic	Area Wage Survey for Selected LMA's and Selected Occupations	BLS Wage Survey	BLS
	State, LMA, SESA Reporting District, SDA	Monthly	ESARS Table 96	Job Bank	SESA

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Chapter Four:

Planning and Implementing Human Resource Programs—

The Roles of Labor Market and Occupational Information

Introduction

During the past two decades, a wide array of human resource programs were funded by the Congress of the United States and state legislatures to combat a diverse number of labor market and poverty problems. Over time, a greater degree of authority for the planning, design, and administration of such programs has been delegated to state and local governments. For example, the Job Training Partnership Act of 1982 gives states the responsibility for managing "systems functions" and gives local governments responsibility for client services.[1] Systems functions include data management, state level planning, and the coordination of employment and training activities. In addition, the state has been made responsible for the establishment and oversight of projects of state significance, such as the dislocated worker program. Local discretion regarding program design and delivery is maintained. The private sector is represented at the policy development and oversight level and in the design and operation of programs at the local level.

Congress also strengthened the Governor's hand in promoting consistency between JTPA activities and existing state policy and initiatives related to economic development, education and training of the work force, and public assistance and social services. Several mechanisms are available to drive the various delivery systems in complementary directions. For example, the JTPA legislation requires the Governor to establish statewide goals and objectives to guide the planning process and to develop coordination criteria which are binding on local as well as state service providers. In developing goals and objectives, governors can articulate specific state priorities such as meshing the Work Incentive Program (WIN), Community Work Experience Program (CWEP), and other programs to promote employment opportunities for welfare recipients. Other mechanisms available to the Governor are the development of criteria for incentive awards to SDAs and/or the use of governor's discretionary funds to complement local efforts. The Act also stresses the use of performance standards and other binding criteria to further statewide effectiveness of program services delivery. In addition, JTPA amends the Wagner-Peyser Act to establish a bottom-up planning process for the Employment Service that places the planning for labor exchange functions on a track parallel too that for job training activities. The Carl Perkins Vocational Education Act similarly establishes a two year planning cycle consistent with the JTPA process.[2]

The Congress of the United States also has explicitly recognized the importance of changing labor market developments for the formulation and revision of state and local plans for human resource programs. In its passage of the Job Training Partnership Act of 1982, the Congress provided local service delivery areas the authority to revise their job training plans whenever changes in local labor market conditions warranted such modifications.[3] Similar needs for timely information on the labor market problems of state and local residents and current employment developments by occupation and industry also exist in the vocational education planning process.[4] The recently-enacted Carl D. Perkins Vocational Education Act of 1984 calls upon state vocational education agencies to take both current and projected employment needs of employers throughout the state into account in developing the state plan.[5] Employment and training needs of selected subgroups of the adult population, including dislocated workers, displaced homemakers, and those with limited English-speaking ability, are to be identified prior to the development of programs for adult training and retraining.[6] Knowledge of current employment trends by industry and the hiring activities and practices of employers in local industries is also needed by the state Job Service agency to formulate their annual service plans.[7] Timely and reliable labor market and occupational information are, thus, clearly needed by human resource policymakers and planners in assessing the current labor market and economic environments in which their programs will be operating.

To identify the appropriate roles of labor market and occupational information in the planning process for human resource programs, the nature of the planning process and the specific types of activities that should be undertaken to plan such programs in an effective manner need to be understood. As noted earlier, the demand for labor market and occupational information should be perceived as a derived demand; i.e., the need for such information is generated by the information requirements of decisionmakers and planners in the human resource system. Since the planning process itself generates a demand for information, a review of the fundamental elements of that process should provide a better understanding of the types and characteristics of labor market and occupational information that are likely to be demanded by policymakers and planners in the human resource system.

Overview of the Rational Planning Model

The policymaking and planning literature frequently provides references to a "rational" policymaking or planning model.[8] This rational approach to program planning has been applied to a number of programs in the human resource field.[9] In this rational model, program planning is viewed as a systematic set of interrelated activities, taken in a sequential manner, with feedback effects from one part of the model to other parts. The model depicts planning as an on-going process with built-in flexibility for change as warranted by labor market conditions, program experience, or funding availability, not as a discrete, time-limited activity that is undertaken once every year or two years to comply with federal and/or state planning requirements to secure funding. The five major sets of planning and evaluation activities of the model are summarized in Figure 4-1. These activities include major elements of both the strategic and tactical planning models described earlier in Chapter One. The specific types of information needed by human resource staff employed in various functional areas are outlined in Table 4-1 appearing later in this chapter.

The first major set of activities consists of an analysis of the existing and projected environment in which the programs will operate. Since human resource programs are designed either to prevent future labor market problems or combat existing problems, the planning of such programs must be based upon a thorough understanding of the size, nature, and causes of human resource problems in the local planning area.[10]

The other major elements of the rational planning model involve the establishment of local program goals and objectives, the selection of program strategies, the implementation and management of programs, and the monitoring and evaluation of programs. The arrows between the various boxes in Figure 4-1 point out the sequential nature of the planning acivities and the nature of feedback effects. Planning activities are highly interdependent. Decisions made at one stage of the planning process have immediate implications for the next stage. For example, the establishment of local program goals and objectives will critically influence both the choice of appropriate program strategies and the design of the monitoring and evaluation system. The rational planning model also allows for important feedback effects from one part of the system to the other. Planning activities are, thus, characterized by circular relationships rather than as a set of activities with fixed beginning and end points.[11] Findings of local monitoring and evaluation activities should provide valuable insights into the need for redefining goals and objectives, revising program strategies, or strengthening the management and operational efficiency of existing programs.

The rational planning model has been subject to a number of criticisms in the literature.[12] On the one hand, there are those critics who argue that the rational model is an "ideal type" representing only one of many possible approaches to planning and one which in practice does not appear to be adhered to by many public sector agencies. These notions are not disputed here. At the same time, it must be recognized that, if a local human resource agency truly wishes to allocate its scarce resources in an efficient manner and promote the maximum attainment of human resource goals, organizing planning activites along the lines of the rational planning model makes good sense. It provides a systematic guide to the organization of local planning activities and makes evident to decisionmakers at each stage of the planning process the implications of each preceding decision for the remaining planning, design, and implementation activities.

On the other hand, there are those critics who argue that the rational planning model is not feasible due to time, staff, expertise, and information constraints in the real world. All human resource agencies have limited staff and resources to devote to the planning process. Information on the size and nature of human resource problems, the relative worth of alternative objectives, the complete array of available and feasible strategies, and the likely impacts of these alternative strategies upon goal attainment is frequently quite limited.

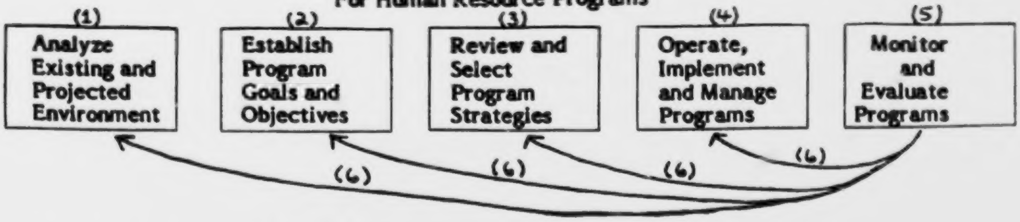
While duly noting the existence of these constraints, it should be noted that planning activities will be undertaken and that decisions for allocating scarce human resource program monies will be made. While having neither perfect information nor unlimited resources for undertaking planning activities, administrators and planning staff can "muddle their way through" the planning process in a relatively effective manner by adhering to the general guidelines of the rational model.[13] Effective "muddling through" requires a commitment by decision-makers to make the best use of available labor market and occupational information. Objective use of available labor market information to inform the decisionmaking process at all stages is clearly in accord with the spirit of the rational planning approach. Perfect information will never be available; however, improvements in the production, dissemination, and use of existing information are clearly feasible and desirable.

Analyzing the Existing and Projected Environment

The first major set of planning activities for state and local human resource programs involves an analysis of the current and projected labor market environment in which programs will be operated. Among the major tasks that should be completed by the planning staff as part of this analysis is a review and interpretation of the demographic composition of the population and civilian labor force and current and projected short-term trends in aggregate labor force, employment, and unemployment developments in the state or local labor market.[14] Knowledge of recent trends in overall employment and unemployment levels and the structure of job opportunities by industry and occupation can assist in identifying the changing size, nature, and causes of human resource problems at the state and local level and the potential success of various job placement, classroom training, and on-the-job training efforts. Planners in many human resource agencies frequently cite a need for information on aggregate labor force developments and demographic/socioeconomic characteristics of the local population and labor force participants. Knowledge of the labor force behavior of various subgroups of the local population can be helpful in identifying problems of "hidden unemployment" and available labor force reserves that can provide a pool of workers for firms that may be considering locating or expanding operations in the local planning area.

Since many human resource programs are designed to combat existing underdevelopment and underutilization problems, a careful analysis of the nature and severity of the human resource problems of the local unemployed, underemployed, and economically disadvantaged populations is critical for the effective targeting of program services to selected population groups. In recent years, increased emphasis has been placed on identifying and serving specific subgroups of the unemployed, including dislocated workers, displaced homemakers, and "at risk" youth. Planning for human resource programs, such as Title II of JTPA, which have income eligibility criteria also requires information on the size and selected demographic/socioeconomic characteristics of the local economically disadvantaged population.[15]

Figure 4-1
The Rational Planning Model
For Human Resource Programs


(1)
Analyze Existing and Projected Environment
(2)
Establish Program Goals and Objectives
(3)
Review and Select Program Strategies
(4)
Operate, Implement and Manage Programs
(5)
Monitor and Evaluate Programs
(6)
(6)
(6)
(6)

(1) Analyze existing and projected environment

- Assess current and projected local economic and labor market conditions
- Identify and analyze current and projected human resource problems of the client groups to be served by the agency
- Review findings of evaluations of recent program performance
- Identify resources available for administering current and future programs

(2) Establish program goals and objectives

- Review the existing mission statement of the agency; determine whether mission statement adequately reflects current labor market realities and the nature of the client population
- Review past program effectiveness in achieving objectives for target groups
- Rigorously define and prioritize the planned goals and objectives for current and future programs, including which human resource problems to address, which target groups to serve, and which desired outcomes to achieve

(3) Review and select program strategies

- Review alternative feasible strategies for achieving goals and objectives
- Analyze the past and projected future effectiveness of these strategies in achieving local goals and objectives, including an assessment of the influence of changes in the external environment on their likely current effectiveness
- Determine the costs of implementing each of the alternative strategies
- Select that subset of strategies which will enhance overall agency goal attainment
- Develop appropriate performance measures and standards for each program

(4) Implement, operate, and manage programs

- Allocate monies to each program operator selected for funding
- Recruit and assess eligible applicants
- Provide vocational and career guidance and counseling
- Refer applicants to programs and provide planned services to participants
- Develop curriculum
- Provide support services to participants
- Provide job development and placement support services to participants

(5) Monitor and evaluate programs

- Monitor on-going performance of existing programs and compare actual with planned performance; develop appropriate corrective action strategies whenever and wherever necessary
- Develop appropriate outcome measures to represent short and long-term objectives of the agency's programs
- Measure short-term and longer-term outcomes of programs, track post-program employment and earnings experiences of participants
- Assess their effectiveness in achieving program goals and objectives
- Measure costs of program activities
- Determine the cost-effectiveness of alternative program activities

(6) Provide feedback of evaluation findings

- Interpret and analyze the evaluation findings
- Provide feedback on the specific program and policy implications for:
  - the future mission of the local human resource agency
  - future target group selection
  - the selection of future specific program strategies
  - curriculum design and program operations
  - job development, placement, and followup support services

Establishing Program Goals and Objectives

Once the existing and projected labor market environment has been examined, the next major set of tasks involves reviewing the existing mission statement of the organization and developing specific goals and objectives for the programs being planned. General mission statements of most human resource agencies are unlikely to be radically changed from one year to the next, particularly for such programs as those funded under the Job Training Partnership Act where the mission statements are embedded in the national legislation. The specific outcomes desired from local programs, however, may well have to be revised on an annual basis in light of recent program experiences, changing labor market conditions in the local planning area, and altered priorities by state and local policymakers.

Effective planning of human resource programs is dependent upon the existence of explicit goals and objectives for the local human resource system; thus, state and local policymakers should provide specific guidance to planners on which objectives they wish to accomplish with available resources and the priorities they assign to different objectives. This process ideally would involve a careful comparison of likely outcomes from the pursuit of current policies with potential outcomes from a shift in direction. This concept of "directional planning" has been defined by Robert A. Levine in his book, Public Planning: Failure and Redirection, in the following manner:

> "...policymakers should decide what general sort of future would be better than an alternative, and policy planners should layout steps that show a probability of moving in that general direction."[16]

A number of recent national studies of the management and operations of employment and training programs have revealed the critical importance of well-specified local goals and objectives for effective planning, management, and performance of such programs. In their study of the planning and management activities of a sample of CETA prime sponsors, Randall Ripley of Ohio State University and his associates argued the case for an open decisionmaking and planning process as part of an overall strategy to manage conflict effectively and to improve program performance.[17] A basic element of such a planning process was the clear articulation of goals and objectives for local CETA programs involving both general statements of policy intent as well as specific judgements with respect to whom to serve and how best to serve them with available resources. Labor market and occupational information can play a key role in the goal setting process by providing an objective source of data for use by policymakers in making determinations of whom to serve and identifying likely outcomes for participants, employers, and the public at large from the provision of such services. As Ripley has noted,

> "Lack of clearly articulated goals or the presence of goals that are almost all implicit can create problems in both planning and, ultimately, in performance."[18]

A commitment to the basic mission of job placement, careful planning, on-going management analysis, and evaluation of program operations have been found to be key characteristics of high performing Employment Service (ES) agencies at the state level.[19] State ES agencies that devoted little time and few resources to planning and evaluation and that lacked a well defined mission typically experienced below average performance. Somewhat similar findings were generated by an institutional analysis of the performance of state Work Incentive Programs.[20] In those states in which WIN program staff were more informed of basic national program goals and recognized the importance of achieving "quality" job placements as well as simple numbers of placements, overall performance tended to be higher. WIN program staffs' understanding of the basic goals of the system and their commitment to the attainment of the goals were factors associated with high levels of program performance.

The existence of clearly defined program objectives that are understood and supported by administrators and staff also has been found to be a key characteristic of effective vocational education agencies at the secondary and post-secondary level. Success in achieving training-related placements has been found to be higher in local vocational agencies in which a consensus for achieving training-related placements was found to exist among administrators, counselors, teachers, and job placement staff.[21] School-to-work transition programs for high school seniors, especially those targeted upon economically disadvantaged youth, appear to have been more successful in improving the early post-high school employment experiences of participants when job placement and followup support services were assigned priorities by the program and specific placement objectives were established for individual program staff.[22]

The importance of well-defined goals that are shared by all major staff in state and local human resource delivery systems has been emphasized in the education literature as well. In his recent report on the American high school, Ernest Boyer of the Carnegie Foundation remarked that:

> "A high school, to be effective, must have a clear and vital mission. Students, teachers, administrators, and parents at the institution should have a shared vision of what, together, they are trying to accomplish."[23]

The effective schools literature also cites the importance of establishing educational goals at both the local school district and elementary or high school level, with inputs into the process being provided by superintendents, principals, and teachers.[24] Finally, in his recent volume on the state of the American high school, Theodore Sizer has recently argued that:

> "A successful class is one in which students and teacher agree on what they are about and on the rules of their academic game... If effective learning is to take place, student and teacher must agree on the means to reach it."[25]

The establishment of goals and objectives for many human resource programs involves decisions about which human resource problems to address (unemployment, long-term unemployment, underemployment, low earnings and/or income inadequacy), which target groups to serve, and desired educational, labor force, employment, and earnings outcomes for participants. The selection of state and local goals and objectives will have critical implications for other elements of the planning process, given the interrelationships among the various planning tasks. For example, given the fact that the demographic/socioeconomic composition of groups experiencing different types of human resource problems will differ from one problem to another, target group selection should be substantially influenced by the types of human resource problems these programs are designed to combat.[26] As noted earlier, the unemployed, the dislocated worker, and the economically disadvantaged populations are frequently quite distinct from one another in terms of their size and demographic/socioeconomic characteristics.[27]

Programs designed to combat different types of human resource problems will be targeted upon different subgroups of the state or local working-age population. The targeting process must be inextricably linked to the goals and objectives of the local human resource delivery system.

The establishment of goals and objectives also will have implications for the selection and design of program strategies. Goals and objectives of human resource programs frequently focus on placements into unsubsidized employment, the attainment of training-related placements, placement wages at or above a pre-determined standard, i.e. $5.00 per hour, and placements into jobs that will generate annual earned incomes above desired target levels, e.g., 70% of the BLS lower living standard income level for families of a given size in the local planning area. Success in achieving training-related placements, placement wage standards, and annual earned incomes for participants will be dependent upon both the proper selection of training programs and job placement strategies targeted upon occupations and industries whose skills levels, wages, and earnings potential are consistent with pre-determined goals and objectives. Failure to closely relate characteristics of occupations in the local labor area with the pre-determined goals and objectives of the system will lead to improper selection of program strategies and an inability to achieve desired performance standards.[28]

The determination of program goals and objectives will also have direct implications for the design of the state and local evaluation system. Program evaluation activities are primarily intended to assess the extent to which the goals and objectives of state and local programs have been achieved. An evaluator's ability to select appropriate measures of program performance that are capable of generating findings useful for future policymaking and planning will be seriously limited in the absence of a clearly and rigorously defined set of goals and objectives. The critical role of well-specified goals for guiding the evaluation of employment and training programs and assessing the effectiveness of alternative strategies has been described by Barry White, a former evaluator in the U.S. Office of Management and Budget, in the following manner:

> "If program goals cannot be identified with enough precision, if the measures of goal achievement are not clear, or if the information necessary to develop the measures and to find out how much of the goal was achieved at which cost is not available, then we have no rational foundation upon which to build our analysis. Other factors will, of necessity, be given disproportionate weight."[29]

Reviewing and Selecting Program Strategies

Once state and local goals and objectives have been established and target groups have been identified, the planning process should focus on the selection of appropriate program strategies. As noted above, the design of effective strategies should be influenced by the objectives of the state and local system and by the characteristics of the target groups. Different target groups can be expected to have varying aptitudes and abilities and face somewhat different employability barriers (lack of basic skills, lack of a high school diploma, limited work experience, absence of marketable vocational skills). The design of the services mix should take into consideration the specific nature and types of employability barriers encountered by the selected target groups. The selection of appropriate program strategies should also be based upon findings of local program evaluations with respect to the performance of past program activities. Planning human resource programs is typically an "incremental" process in which small adjustments are made in program mix and content on a continuous basis. The delivery system is not completely overhauled in any one year.

A diverse number of state and local human resource programs provide occupationally-specific classroom training and on-the-job training services to their participants. Among the human resource agencies providing such training services are JTPA service delivery areas, vocational rehabilitation agencies, secondary vocational/technical education institutions, and post-secondary vocational/technical schools, including community colleges and four-year colleges and universities offering associate degree programs. The selection of occupational areas in which to provide training should be based in part upon the current and projected employment outlook for workers in various occupations at the state and local level. Other occupational characteristics also need to be examined, including anticipated education/training durations, licensing requirements, employment stability, potential earnings, and working conditions.[30]

The specific labor market and occupational information needs of planning staff responsible for selecting occupational areas for training tend to vary somewhat from one agency to another.[31] Planning staff in agencies providing on-the-job training services and relatively short-term classroom training (six months or less) are more dependent on information on local growth industries, the specific establishments found in these local growth industries, their occupational staffing patterns, and current job openings by industry and occupation. Immediate or projected short-term employment opportunities are more relevant to their planning needs.

Planning of longer-term classroom training programs, on the other hand, needs to be based upon projected employment growth and projected job openings by occupation over two to five years or longer. Given the Congressional mandate of providing vocational training in occupational areas with unmet skill needs, the planning of such longer-term training programs should also take into consideration the availability of newly-trained workers from existing education and training institutions.[32] The occupational demand/supply data elements contained within many state and local occupational information systems can be of major assistance to planners in identifying occupational areas in which projected shortfalls will likely occur.[33] Knowledge of the specific education and training institutions providing such training can also be extremely helpful in facilitating coordination among human resource agencies in the provision of future training. Career information delivery systems often contain such institutional information and can contribute to improved coordination in service delivery at the local level. Clearly, timely and reliable labor market and occupational information of both a formal and informal nature is indispensable to the design of appropriate human resource strategies.[34]

Implementing, Operating, and Managing Programs

Once program strategies have been selected and mechanisms for delivering planned services have been determined, the plan of service should be implemented. The efficiency of program implementation will ultimately determine the success of all human resource programs at the state and local level. The critical role played by program staff in implementing policy and executing plans has been given a greater degree of recognition in recent years.[35] As Robert Chambers has noted, the availability of administrative staff capable of implementing programs faithfully and effectively may be the scarcest resource of all:

> "There is a profound conditioning of those who have been through the process of being trained in cost-benefit analysis, and indeed of becoming economists, into supposing that finance is the scarcest resource to which others should be reduced. In practice, when you come to the implementation of projects, the scarcest resource is often found to be what one might call administrative capacity, or the capacity to get things done."[36]

Given the critical role of the implementation process, it is imperative that program staff should devote their daily time and effort to those activities that will increase the likelihood of attaining the goals and objectives of the local human resource system. As noted earlier, local program staff first need to be aware of the actual goals and objectives of the system and be suppportive of that mission. Otherwise, staff time and effort will be devoted to activities only marginally related to the attainment of key local objectives. In planning their daily activities, however, practically all human resource staff at the service delivery level need reliable information to make proper decisions. A major part of this decisionmaking process of service delivery staff is based upon the explicit or implicit use of formal or informal labor market and occupational information. Among the diverse staff functions dependent on the use of such information are client assessment and referral, the provision of occupational guidance and counseling services to participants, world of work instruction, job search training, design of curriculum for vocational training programs, and job development and placement. The specific types of labor market and occupational information needed by the different staff does vary considerably; however, the use of timely and reliable information, of both a formal and informal nature, is indispensable to the operational efficiency of the local human resource delivery system.

1. Client Assessment

Within most human resource agencies, a number of professional staff are assigned the responsibility for assessing the aptitudes, interests, and abilities of applicants and program enrollees. Such assessment activities frequently involve the use of a number of vocational aptitude, interest, and academic competency tests, including the GATB, Harrington/O'Shea interest inventory, TABE, Metropolitan Achievement Test, ETS Basic Skills Assessment Test, and the Stanford Achievement Test.[37] More specialized assessment activities are undertaken in agencies providing services to physically and/or mentally impaired client groups.[38] The primary purpose of these various assessment activities is to identify the combination of remedial education, vocational training, and support services that applicants or enrollees will need to be provided in order to achieve career development goals. The assessment process attempts to match the abilities, aspirations, and aptitudes of clients with the requirements and characteristics of existing jobs and training opportunities.

Upon completion of formal testing, employment counselors and employability development specialists need occupational information to effectively assist clients. The counselor's task becomes one of relating assessment findings to information on job characteristics and requirements by interpreting test scores and converting these scores into specific immediate and long-term vocational goals. Information on the formal education, training, and skill requirements of occupations as well as information on the physical requirements of work in such jobs are key inputs into this process of developing strategies for achieving occupational goals. Employment counselors and program enrollees should be able to select target occupations that are in close accord with individual interests and aptitudes by using such tools as automated Career Information Delivery Systems (CIDS) and the recently published Guide to Occupational Exploration (GOE).[39]

It is equally important for assessment staff to understand current and projected employment prospects for alternative occupations to be able to successfully develop practical employability development plans for clients. Frequently, employment counselors rely on such information for "reality testing" of individual career goals and aspirations. Thus, there exists a need for available data on current and projected information on local job openings by occupation. Participants in many human resource programs have limited geographic mobility, due to physical limitations or the need to be near the source of substantive support services. Thus, they are only able to seek work within a limited geographic area.[40]

2. Vocational Career Guidance and Counseling

Among the principal roles of career counseling and guidance professionals is that of assisting individuals in making sound career choices.[41] Such assistance is primarily aimed at improving the knowledge, skills, and abilities of such individuals to make decisions about education, training, and employment that will enable them to more effectively manage their long-term career development.[42]

In providing occupational guidance to individuals and client groups, career counselors are primarily in need of local information in the five following areas: current and projected demand for workers by occupation; current and projected supply/demand relationships in the occupation; key characteristics of occupations, including expected earnings, promotion potential, working conditions; educational and training requirements associated with the occupation; and information that identifies key local and/or statewide employers of workers in these occupations, their staffing patterns and their hiring practices. These data elements that are often available in a CIDS can be of major assistance in "reality testing" student and client occupational goals. The data can be used to inform clients/students of the types of education and training requirements they will need to meet to pursue their career goals in occupations of interest to them, the earnings they can expect, and the current and projected employment opportunities available. At the same time, students can be exposed to occupational options they may not have previously considered.

3. World of Work Instruction

A number of human resource programs for youth, including school-to-work transition programs, vocational exploration programs, and career education programs, provide instruction on world-of-work issues. Many high school youths, particularly those from low income and minority families, have been found to be quite deficient in their understanding of how labor markets operate, the types of jobs available in state and local labor markets, hiring requirements for such jobs, and the potential earnings and working conditions associated with alternative types of occupational employment.[43] Improving youths' knowledge of the world of work is a basic intermediate objective of many of the above types of programs, and increased occupational knowledge is believed to be a form of human capital investment that will yield payoffs to participants over their working lives in the form of higher employment, earnings, occupational status, and job satisfaction.[44] Recent research findings indicate that young high school graduates who believed that employers had "tough" hiring standards tended to achieve significantly better employment and unemployment records in the first year following graduation and to receive superior evaluations by their employers on measures of work attitudes, habits, and productivity.[45]

Instructors in such world-of-work courses typically attempt to improve participants' skills and knowledges in a number of different areas, including occupational knowledge, career planning and decision-making, work attitudes, job search behavior, interviewing techniques, and appropriate work behavior. Many of the information needs of these instructors are similar in nature to those of career guidance counselors. In addition to being useful in instructing students, knowledge of available entry level jobs and local employers' hiring practices and performance standards is particularly important for world-of-work instructors, many of whom also have job development and placement responsibilities.

4. Job Search Training

During the past decade, a variety of job search training programs and job clubs were operated throughout the country for public assistance recipients, economically disadvantaged youth, dislocated workers, and terminees from Public Service Employment

(PSE) programs funded under the previous CETA system.[46] These programs have been administered by a diverse number of human resource agencies, including prior CETA prime sponsors, current JTPA service delivery areas, community-based organizations, local Job Service offices, self-help organizations, and local WIN programs. While the major objectives of these programs tend to differ somewhat, they are primarily intended to reduce the length of time required to find a job, improve employability and earnings over time, and increase future job satisfaction of program participants. Since these job search abilities and skills are viewed as life-long, acquisition of such skills should increase the effectiveness of future jobseeking efforts by participants in these programs.

The instructional methods and curriculum materials utilized by these programs have been found to differ quite widely. Most programs, however, tend to provide some instruction on local job structure, alternative types of labor markets (career labor markets versus secondary labor markets), effective job search techniques, resume development, and interviewing techniques.[47] Timely and reliable local labor market and occupational information can be useful in administering such programs. For example, discussions of local job structure and alternative types of labor markets will be more effective when instructors possess current information on the industrial structure of the local economy, local industries experiencing recent growth in employment, names and locations of firms in such industries, and the types of entry-level jobs, including job characteristics and the hiring requirments likely to be found in such firms.

Selected types of labor market and occupational information would also be helpful in guiding job search activities. Once a participant has selected one or more occupations or industries upon which to focus the job search, he or she can be guided in the selection of local firms to contact either by telephone or by personal visit. Many job search training programs encourage or require participants to use the yellow pages of telephone directories in conducting the job search. Knowledge of local industries most likely to employ workers in the occupational areas of interest to the job seeker would be helpful. Once these targeted industries have been identified, the jobseeker can use existing publications relating yellow page listings to SIC codes to identify local firms in the targeted industries.[48] Structuring the job search process in such a manner to use available information from both the Job Banks and the State Job Services and informal sources, such as program staff and others, would likely improve the efficiency of the job search efforts of participants.[49]

5. Curriculum Development

Once specific occupational areas have been selected for the provision of classroom training, curriculum guides and training plans have to be developed for these programs. Curriculum developers in vocational education agencies frequently cite a need for current information on the hiring practices, policies, and standards of local firms who employ workers in the specific occupational areas for which training is being provided.[50] Even a few critics of the public vocational education system note the desirability of linking training program design to the specific skill needs of local employers.[51] Such close links between curriculum design and hiring standards should improve the match between classroom instruction and the skills needed to perform adequately in real world job settings.

The need for such information on local employer hiring standards and practices in designing an appropriate curriculum for training programs also has been emphasized by Paul Barton, who in an article on the changing nature of the youth labor market in the U.S. has argued that:

> "The process of deciding on an appropriate vocational education curriculum ought to be carried out on the basis of how employers hire and train in particular industries in a particular community.

> If they hire on the basis of skills received in a vocational classroom, it makes sense to teach those skills as long as the access of youth to jobs is actually increased and the broader purposes of education are not forsaken".[52]

During the past few years, the Congress has placed increased emphasis on the need for youth employment and training programs to improve the employment competencies of participants, particularly those from economically disadvantaged backgrounds. For example, in passing the Job Training Partnership Act, Congress called upon local Private Industry Councils to develop appropriate employment competency measures and standards for use in assessing the job readiness of youth program participants.[53] In the recently-enacted Carl D. Perkins Vocational Education Act, Congress has requested the states to provide assurances that they will develop appropriate evaluation measures that will allow vocational education programs to be assessed on the basis of their ability to equip students with employability skills demanded by employers in their state and local planning areas.[54]

During the past five years, a growing number of attempts have been made to develop and utilize employment competency systems in youth programs.[55] Experience has revealed that the design of such systems can be rather complex, given the fact that local employers frequently have quite different hiring standards for different occupations and that hiring standards for workers in the same occupation will vary somewhat across industries and firms in different employment size classes.[56] Labor market information can be of use in designing such systems by providing guidance on the selection of representative samples of firms to participate in local studies of hiring standards and practices. Such studies would document the actual competency measures and standards used by private sector employers in assessing job applicants and selecting applicants for both initial employment and advanced training within the firm.[57]

6. Job Development and Placement

Most employment-oriented human resource programs, including the Job Service, WIN, JTPA service deliverers, vocational/technical education agencies at the secondary and post-secondary level, and vocational rehabilitation agencies, employ professional staff who are responsible for job development and placement activities. These staff may conduct job development and placement activities full-time or as one part of their overall job responsibilities. In either case, such staff need labor market and occupational information to effectively perform their duties. The outcome of these activities will frequently be a critical determinant of overall program performance.[58]

A number of different sources of labor market and occupational information can be and have been used by job development and placement staff. First, data on the number of available job vacancies by industry and occupation, the geographic locations of the firms with available job openings, the hiring requirements for such openings, and the wages and hours of employment are clearly needed as a first step in the job placement process. Hard copies of microfiche reproductions of job openings listed with the state job services, which contain only a small fraction of all job openings, are often used in the placement of jobseekers and training program terminees. Knowledge of the "hidden" job openings not listed with formal labor market intermediaries can be critical to the success of job placement efforts, particularly since many of them are in firms in the primary labor market.

Existing state and local data bases on labor market and occupational information can be used in an innovative way to develop effective strategies for conducting job development and placement activities.[59] Given the occupational areas in which employment is being sought, the job developer can use existing information on occupational staffing patterns of industries to identify key local industries that are dominant employers of workers in the desired occupations. Once these dominant industries have been identified, industry employment data generated by existing establishment surveys, such as the Current Employment Statistics program and the ES-202 system, can be used to track recent employment developments in these dominant industries. Those industries experiencing recent employment growth can be targeted for job development.

Once these targeted industries have been identified, job developers need information on the names, locations, and employment levels of the local establishments comprising these industries.[60] Such establishment listings can be obtained from a variety of sources, including the ES-202 data base, State Departments of Industry and Commerce, local Chambers of Commerce, Dun and Bradstreet, and other commercial sources. These listings can be used to provide the sample of establishments upon which job development and placement efforts will be focused. Such localized data bases classifying establishments providing job opportunities by occupation have been recommended for use by employment counselors, guidance counselors, vocational rehabilitation placement staff, and job developers throughout the entire human resource delivery system.[61]

Monitoring and Evaluating Programs

Program evaluation activities are primarily designed to measure the degree to which local programs achieve their short-term and longer-term goals and objectives, to assess the factors influencing actual program performance, and to provide feedback information to state and local policymakers, planners, and program administrators. Program evaluation initially requires the development of program performance indicators and standards to serve as benchmarks for planned program performance.[62] These indicators and standards should be good proxies for the short and long-term goals and objectives of the local human resource system. Program evaluation activities then should focus on the measurement of actual program outcomes and determine the degree to which actual performance coincided with planned program performance.

There are a number of different types of evaluation studies that can be undertaken at the state or local level. Among these different types of evaluation studies are process evaluation, outcomes evaluation, impact evaluation, and strategic evaluation.[63] Each of these alternative types of evaluation studies is designed to address somewhat different types of questions about program performance. Thus, they require different types of data inputs and information on program activities and their outputs.

Process evaluation activities are designed to assess the degree to which on-going program activities are being carried out in accord with planned activities. Process evaluations, thus, focus on the flows of participants into and out of program activities, the characteristics of individual enrolless, the types and levels of services provided to participants, and the numbers and types of program terminations that occur throughout the year. Actual enrollments, services, and terminations are compared to planned levels to determine the extent to which the plan is being faithfully executed and to identify the need for corrective actions to bring actual performance into closer accord with planned performance.

The bulk of the data needed to conduct process evaluations is internal to the human resource agency. For example, data on planned levels of performance need to be extracted from the annual or bi-annual plan while data on actual performance are generated by the agency's management information system. The management information system will typically provide information on the placement status of participants at the time of their termination from the program as well as selected characteristics of the jobs obtained by those terminees entering unsubsidized employment. Knowledge of the occupational and wage characteristics of the jobs obtained by terminees from local training programs has been viewed as desirable for career guidance and counseling, and the placement data from such programs are critical data elements for the construction of state and local occupational information systems.[64]

Both outcomes and impact evaluations are designed to track the labor force, employment, unemployment, earnings, and schooling experiences of participants over some given post-program period. Impact evaluations, however, differ from basic outcome evaluations in that they also attempt to estimate the actual net contribution of program participation to observed post-program outcomes; i.e., how much more employment and earnings did participants obtain as a result of their involvement in the human resource program.[65] Estimates of these net impacts of program participation are dependent on the availability of comparison or control groups whose post-program employment and earnings experiences can be compared with those of program participants.

Employment and earnings data used in outcomes and impact evaluations have been generated from a variety of different sources, including participant followup interviews, social security earnings records, and individual worker earnings reports filed by employers covered by federal and state unemployment insurance laws. The latter data base, which is currently available in over 40 states, has been increasingly used to track employment and earnings experiences of vocational education program graduates, job training program graduates, and dislocated workers.[66] These administrative data bases on the employment and earnings of workers in UI covered industries offer a number of unique opportunities for evaluators of state and local human resource programs to track the industrial, geographic, and earnings mobility of program graduates.[67] Effective use of these largely untapped labor market data bases can provide key insights into the performance of human resource programs and the degree of penetration of such programs into various industries and establishments within the local economy.

Providing Feedback of Evaluation Findings

Findings of local program evaluations need to be properly interpreted and analyzed and fed back to state and local policymakers, planners, and program managers for use in the future planning, design, and administration of programs.[68] Knowledge of the diverse factors influencing local program success and failure, including local labor market conditions and occupational employment developments, is critical for the improvement of future program performance. Human resource programs may achieve limited success for a diverse number of reasons, including factors within and outside of the control of local policymakers and program managers. Knowledge of the factors responsible for program performance would assist policymakers and administrators in determining whether to modify local program goals and objectives, expand or contract the size of existing programs, redesign the curriculum of existing programs, or strengthen the job development and job placement functions.

Labor Market and Occupational Information Uses in Human Resource Agency Staff Functions

Human resource agencies provide a diverse array of services to their clients. While the specific mix and intensity of these services will vary from one agency to another, there are many service elements common to these human resource agencies, including client assessment and referral, vocational guidance and counseling, and job development and placement. To provide this array of services to participants, human resource programs employ professional and paraprofessional staff in a variety of functional areas. As noted above, staff within each of these functional areas are frequently dependent upon various types and forms of labor market and occupational information to perform their jobs. For example, in his assessment of the occupational information needs of professional staff in the Job Service and their clients, Charles Odell remarked that:

> "Important decisions based on occupational and labor market information are made at every level of the organization at every moment in the day... All these (decisions) depend in major part on sound, timely occupational and labor market information."69

To illustrate the diverse information needs of human resource staff, a comprehensive table has been constructed to outline the specific types of labor market and occupational information most frequently needed by staff employed in various functional areas. In Table 4-1 the general nature of the tasks performed by these staff are described in the left hand column, the specific types of labor market and occupational information needed by them are displayed in the middle column, and desirable characteristics of the information are outlined in the right column of the table.

The above review of the information needs of a diverse number of human resource staff has revealed that timely and reliable local labor market and occupational information is essential to their daily job performance. Efforts to increase the availabilty, timeliness, and relevance of such information should enhance the ability of staff to perform their jobs in an effective manner and contribute to an improvement in the overall performance of the human resource system.

Table 4-1

Types and Desired Characteristics of Labor Market and Occupational Information Needed to Plan, Design, Operate, Manage, and Evaluate State and Local Human Resource Programs

Task	Types of Labor Market and Occupational Information	Desired Characteristics
1. Analyze Existing and Projected Environment		
(a) Assess current/projected labor market conditions		
• Analyze state and local population	• Data on the size and demographic/socioeconomic characteristics of the local population	• Reasonably current data representative of state/local population
	• Number and demographic/socioeconomic characteristics of key population subgroups in state or local area	• Cross-tabulated data for key population subgroups in local planning area
• Analyze Aggregate labor force developments	• Data on the current size of the civilian labor force and the number of employed and unemployed individuals in the state or local area	• Monthly and annual average data on the size of the labor force, employed, and unemployed population
	• Recent trends in the size of the civilian labor force and the number of employed and unemployed persons	• Data representative of labor force developments in state or local planning area
	• Current unemployment rates and recent trends in the rate of unemployment	• Projected employment and unemployment developments for next 1-2 years
	• Projected unemployment rates for future program years	

Table 4-1 (Continued)

Task	Types of Labor Market and Occupational Information	Desired Characteristics
(b) Identify and analyze human resource problems		
• Analyze the local labor force, identify groups encountering barriers to active labor force participation, assess employment needs of persons outside the labor force	• Data on the demographic and socioeconomic characteristics of labor force participants	• Reasonably current data on demographic and socioeconomic characteristics of labor force participants
	• Data on civilian labor force participation rates of demographic/socioeconomic subgroups and key target groups	• Cross-tabulated data for key target groups • Data representative of state/local population
	• Data on reasons for non-participation in labor force by demographic/socioeconomic subgroups	• Data on reasons for non-participation and barriers to active labor force participation
	• Types of labor force barriers faced by non-participants	
	• Job desires of non-participants	• Types of jobs desired by non-participants
• Identify and analyze existing unemployment problems	• Demographic and socioeconomic characteristics of the unemployed population	• Reasonably current data on levels and rates of unemployment for population subgroups and key target groups

Table 4-1 (Continued)

Task	Types of Labor Market and Occupational Information	Desired Characteristics
	• Unemployment rates of demographic and socioeconomic subgroups and key local target groups	• Annual updates of unemployment rates for major demographic subgroups
	• Types and durations of unemployment problems of demographic and socioeconomic subgroups	• Data representative of unemployed in state or local area
	• Occupations and industries of jobs last held by the unemployed	• Cross-tabulations of data on job losers and long-term unemployed, including their industry and occupational attachment
• Identify and analyze the poor and economically disadvantaged working age population	• Data on the size and demographic/socioeconomic characteristics of the poor and economically disadvantaged population	• Reasonably current data on the size and characteristics of the poor and disadvantaged population
	• Data on the severity of poverty and income inadequacy problems among demographic/socioeconomic subgroups	• Data representative of the poor and disadvantaged populations in state or local area • Cross-tabulated data on the characteristics of key target groups
	• Data on the labor force behavior and work experience of the poor and disadvantaged populations	• Data that can provide insights into reasons for income inadequacy problems

Table 4-1 (Continued)

Task	Types of Labor Market and Occupational Information	Desired Characteristics
	• Labor force barriers and employability deficiencies of the poor and economically disadvantaged populations	• Data that can highlight general barriers to more active labor force participation
2. Establish Goals and Objectives		
• Select target groups for the delivery of services	• Data on the age and demographic/socioeconomic characteristics of the unemployed, long-term unemployed, hidden unemployed, underemployed, poor, and economically disadvantaged population	• Same as above
	• Data on nature of problems encountered by above groups	
3. Review/Select Program Strategies		
• Identify growth and declining industries in local and state labor markets	• Data on current and projected industry employment levels for two digit and selected three digit SIC levels	• Current employment data on monthly basis produced on a state and local area basis; projections revised at least every 2 years
• Identify occupational staffing patterns of growth industries	• Data on the occupational composition of selected three digit SIC industries	• Reasonably current information

Table 4-1 (Continued)

Task	Types of Labor Market and Occupational Information	Desired Characteristics
• Identify numbers of current and projected job openings by occupation	• Data on the number of current job openings by occupation and industrial distribution of such openings	• Current job openings data on monthly or quarterly basis
	• Projections of future job openings due to growth and replacement	• Projected job openings revised every two years
• Identify major sources of institutional supply to occupations and numbers of recent program completers	• Listings of names, addresses, and phone numbers of institutions training workers by occupation	• Reasonably current information on program completions and placements
	• Data on numbers of individuals successfully completing programs and training related placements	
• Identify key characteristics of occupations meeting specific criteria for training consideration	• Weekly and annual earnings of workers in targeted occupations	
	• Sex/race composition of workers employed in targeted occupations	
(a) Recruit and assess applicants		
• Assess individual abilities, interests, and aptitudes of applicants to perform alternative types of work		

Table 4-1 (Continued)

Task	Types of Labor Market and Occupational Information	Desired Characteristics
• Link assessment/test/interview findings to traits and requirements of specific occupations	• Information relating academic and physical test scores to math, reading and physical requirements of jobs	• Occupational assessment should be related to DOT or similar classification system
	• Information on relationships between personal interests and occupational areas of interest	
	• Data on educational attainment of recent entrants to occupation	
	• Information on specific vocational preparation desired by employers	
• Referral of applicants to education, training, and employment services	• Inventories of services available from organizations providing educational and training services to relevant target groups	• Current local listings of resource agencies and their service offerings
(b) Provide vocational and career guidance and counseling		
• Identify current and projected industry and occupational employment developments	• Data on current and projected industry employment	• Timely data on current industry employment
	• Data on projected employment growth by occupation	• Projections data available on a national, state, and local basis

Table 4-1 (Continued)

Task	Types of Labor Market and Occupational Information	Desired Characteristics
	• Data on replacement requirements for occupations	• Reasonably current data on hiring requirements and earnings of workers in occupations
• Assess characteristics of occupations and the education and training requirements of occupations	• Information on educational and training backgrounds of employed persons in occupation	• Reasonably current information on key local employers
• Determine if occupations are compatible with individual needs, desires, and aptitudes of students	• Information on working conditions • Information on annual earnings of occupations, opportunities for promotion	
• Identify available education and training programs in occupations of interest	• Information on names, locations, entrance criteria of schools offering related training	
• Identify major local employers of workers in occupations	• Names of locations of major state and local employers in occupation	
(c) Provide program as planned		
• World of work instruction	• Data on the current and projected structure of jobs by industry and occupation	• Reasonably current employment data for local and state labor markets

Table 4-1 (Continued)

Task	Types of Labor Market and Occupational Information	Desired Characteristics
	• Hiring requirements for occupations (education and training req.)	• Reasonably current data on hiring requirements and occupational characteristics
	• Characteristics of occupations (working conditions, earnings, hours of work)	• Information on hiring requirements and access paths to occupations representative of situation in local labor markets
	• Access paths to employment in occupations	
• Job Search Training	• Data on structure of jobs in local labor market	• Reasonably current data on job developments in local industries
	• Data on current job openings in local labor market by industry and occupation	• Timely data on current job openings
	• Data on major local employers of workers in specific occupations	• Local listings of establishments in industries that employ workers in desired occupations
	• Data on hiring requirements and conditions of employment	• Hiring requirements locally relevant
	• Access paths to jobs in hidden labor market	
(d) Develop curriculum for skills training programs	• Information on worker traits, knowledge, and skills desired by local employers of workers in related occupations	• Timely information that is representative of actual local employer hiring and training practices and policies

Table 4-1 (Continued)

Task	Types of Labor Market and Occupational Information	Desired Characteristics
(e) Provide job development and placement services		
• Identify local growth industries	• Data on local industry employment trends at the two digit and selected three-digit level	• Timely data reflecting current employment developments available for a local area basis
• Identify the occupational composition of local growth industries	• Data on occupational staffing patterns of industries, including detailed occupational employment at the two and three digit SIC basis	• Data representative of state or local industries
• Identify industries that are major employers of workers in occupations in which participants are seeking employment	• Data on the distribution of occupational employment across industries at the two and three digit SIC level of detail	
• Identify local employers in above growth industries and their hiring requirements	• Name and address listings of local employers by two and three digit SIC industries	• Reasonably current listings

Table 4-1 (Continued)

Task	Types of Labor Market and Occupational Information	Desired Characteristics
5. Monitor and Evaluate Programs		
• Evaluation of the performance of education, training and employment programs	• Data on numbers and characteristics of individuals successfully completing the program • Data on numbers and characteristics of persons obtaining employment following completion of program and characteristics of jobs obtained (occupation, training-related nature, hours, and wages)	• Data that are timely and representative of participants in program • Data that are appropriate proxies for goals and objectives of programs • Net impact estimates can be derived

Chapter Five:

Applications of Labor Market and Occupational Information in the Planning and Design of Human Resource Programs

Introduction

A key number of practical data analysis techniques and applications are relevant to the planning and design of state and local human resource programs, including secondary and post-secondary vocational education programs, JTPA Title II A and III programs, Job Service labor exchange operations, and vocational rehabilitation programs. Analysis is the mechanism through which data become the information used in planning and policymaking. The first four chapters of this text have used the terms data and information fairly interchangeably even though they are not synonymous. Dr. E.E. Liebhafsky of the University of Missouri has described analysis as a linkage between the two by stating that:

> "Labor market data become labor market information only after analysis... In approaching the production of LMI from the broadest point of view, it is appropriate to recognize that analysis is the process of converting data into information."[1]

Available data are intended to provide key informational inputs into the policymaking and planning process to improve decisionmaking. Timely and reliable data are critical for:

- effective analysis of existing human resource problems;
- the selection of target population groups;
- the design of appropriate employment and training strategies;
- the efficient administration of programs; and
- evaluations of the effectiveness of human resource programs at the state and local level.

Data should not be viewed as a substitute for informed judgement, rather the analysis of labor market data should always take into account the informed judgments of human resource policymakers, administrators, or program planners. If properly and effectively used, available labor market and occupational data bases and information can be used to increase the responsiveness of human resource programs to changing labor market realities and enhance the capabilities of existing programs to contribute to the attainment of key economic and social goals of the nation, states, and local communities.

Projections data in particular need to be interpreted in a careful manner by human resource planners and are best used in conjunction with informed judgements and other sources of data and information on current state and local labor market developments. In analyzing projections data, human resource planning staff should use the projections as a further method for validating findings of their previous analysis of recent labor force and employment developments in state and local planning areas. A similar view was also expressed by Ron Kutscher, Associate Commissioner of the Bureau of Labor Statistics, in a recent speech where he noted that:

> "Economists and others involved in forecasting economic activity understand the uncertain nature of projections. However, others, including those who are primary users of the information, may not. The development of numerical projections is only the first task in presenting information on economic trends or employment growth. It is just as important to present the data in a meaningful way."[2]

The illustrations included in this chapter will demonstrate the potential uses of current and projected population, labor force, employment (industry and occupation), unemployment, poverty/income inadequacy, and occupational data in designing, operating, and evaluating human resource programs at the state and local level. The data presented are for a hypothetical state, called State A, and a local area, called Local Area A. These data are generally available in the states from a variety of sources, although all states may not provide the information to planners in formats similar to those in this text. National data referenced in the narrative analysis are actual data. The citations at the bottom of these tables identify the sources of these data.

Population Analysis

Knowledge of the size and demographic characteristics of the population in a state or local planning area frequently is indispensable to the effective planning of many human resource programs for the following reasons. First, demographic developments in a state or local planning area can be expected to have important implications for current and future employment and training policy. The future growth of a state or local area's labor force will be influenced to a major degree by the size and age distribution of its population.[3] For example, the larger the relative decline in the youth cohort of an area and the larger the growth of the population in the near-retirement years (age 55-64), holding all other factors constant, the greater will be the pressures on future labor supply. The degree of such labor supply pressures will vary from one area to another due to differences in past rates of internal population growth and migration into and out of the area. The labor supply changes generated by these demographic developments will likely have an independent impact upon the level and structure of unemployment in a state or local economy.[4]

Second, many human resource programs, including JTPA, Job Service, Vocational Education, and Vocational Rehabilitation programs, are asked to give due consideration to the employment and training needs of particular population subgroups, including displaced homemakers, the handicapped, members of racial/ethnic minority groups, persons with limited English-speaking ability, and veterans.[5] Knowledge of the numbers and characteristics of such individuals is, thus, important for the proper targeting of program services and for guaranteeing an equitable allocation of resources to various subgroups of the eligible population.

Third, estimates of the size of the civilian non-institutional population serve as denominators in the formulas for several key labor force activity and income inadequacy measures, including civilian labor force participation rates, employment/population ratios, and poverty rates.

Table 5-1 provides data on the age, sex, and race characteristics of the civilian non-institutional population (14 years and older) living in State A. The most comprehensive source of data on the demographic characteristics of the population in states and local areas is that of the decennial Census. Data on the age/sex/race characteristics of the population were obtained from a complete count of households in each state and local area. More detailed demographic and socio-economic data (educational attainment, household income, health status, veteran's status) were collected from a sample of households (approximately 20%) in each state and local area through the use of a long-form questionnaire.[6] Most states update the census data yearly, based on a methodology developed in the 1970's by USDOL.

Population data for a state or local area can be analyzed in a number of different ways for human resource planning purposes. First, comparisons with previous years' data, including the 1970 decennial census data, and comparable data for other states and the nation enable the planner to assess trends in the overall size, age structure, and racial/ethnic composition of the local population and identify unique aspects of demographic developments in the planning area. Changes in the age structure have important implications for future labor force growth and replacement demands. For example, during 1980, 14.3% of State A's civilian non-institutional population was in the 55-64 age group. In comparison, only 12.7% of the nation's working-age population was in this age group at the time of the 1980 Census.[7] Thus, State A is likely to experience a relatively greater amount of job replacement demand due to retirements during the 1980's. The specific nature of this replacement demand will be influenced by the types of jobs (industries/occupations) held by employed persons age 55-64 in this state and the labor force withdrawal rates of workers in these occupations as they age.

Secondly, analysis of the age and race distribution of the local population at a point in time will provide insights into likely future labor force developments in the labor market area. For example, the 16-19 age cohort existing in 1980 will provide the major source of new entrants in the adult-oriented labor market (20-24 year olds) during the first half of the decade. The size of the age cohort 10-14 will influence the volume of new labor force entrants during the latter half of the decade. At the time of the 1980 Census racial and ethnic minorities age 16 and older accounted for only 9.8% of the civilian non-institutional population of this state. However, among 14-19 year olds, racial and ethnic minorities accounted for nearly 15% of the population. Improving the employability of minority youth will become increasingly important to state efforts to reduce unemployment and poverty problems among the young adult population and provide employers with an available pool of adaptable and skilled entry-level workers.

In addition to examining the demographic characteristics of all working-age individuals in a state or local planning area, human resource planning staff may wish to analyze the demographic and socio-economic characteristics of family heads. Such data are useful in assessing the incidence of poverty and other income inadequacy problems among different subgroups of families and in effectively targeting services of human resource programs aimed at improving the employability of particular types of family heads, including displaced homemakers.[8]

Data on the age/sex/race characteristics of family heads in State A are presented in Table 5-2. During March 1980, there were 812,240 families residing in State A. Of this total, 155,420 families or 19.1% were headed by a woman.[9] The share of families headed by women does tend to vary sharply by race/ethnic group in this state. Of all white, non-Hispanic families in this state, only 16.5%, or 1 of every 6 families, are headed by women. Among black and Hispanic families, this ratio rises to 45.5% and 37.5% respectively. Knowledge of the race/ethnic structure of families is important to an understanding of race/ethnic differences in median family income, poverty, and eligibility for income conditioned programs, such as Title II JTPA programs.[10]

Another important type of Census data for labor market analysis is that related to the educational attainment of the working-age population. These data are important for the following reasons. First, formal educational attainment is a key determinant of labor behavior, employment status, access to employment in particular types of occupations, and earnings of individuals. The likelihood of a person actively participating in the labor force, particularly among women, is positively related to years of formal educational attainment.[11] Knowledge of the educational attainment of particular local population subgroups is, thus, critical to an understanding of observed differences in the labor force behavior, employment, and earnings of local population subgroups. Second, a number of human resource programs, including JTPA Title II programs, are either mandated to serve high school dropouts in proportion to their share of the eligible population or expected to make good faith efforts to target their services upon high school dropouts.[12] Knowledge of the absolute size and age/sex/race characteristics of the dropout populations is, thus, needed to properly target services.

Table 5-1

Age/Sex/Race Characteristics of the Civilian Noninstitutional Population[1]

State A

March 1980

Age (14 and Older)	Total	Race/Ethnic Category[2] White non-Hispanic	Black non-Hispanic	Hispanic	Other non-Hispanic
Both Sexes, Total	2,454,340	2,203,380	147,520	54,000	49,440
14-15	113,780	95,600	10,600	3,840	3,740
16-19	227,180	194,660	19,000	7,260	6,260
20-21	104,420	91,100	7,480	2,980	2,860
22-24	152,880	132,840	11,600	4,700	3,740
25-34	482,320	423,040	32,480	14,680	12,120
35-44	363,580	320,220	24,140	10,480	8,740
45-54	334,300	304,900	18,540	5,040	5,820
55-64	334,200	314,340	13,400	2,820	3,640
65+	341,680	326,680	10,280	2,200	2,520
Male, Total	1,157,060	1,043,320	65,860	25,400	22,480
14-15	58,700	49,440	5,260	1,920	2,080
16-19	112,200	96,820	8,860	3,640	2,880
20-21	50,880	44,240	3,680	1,540	1,420
22-24	73,960	65,600	4,660	2,040	1,660
25-34	230,100	203,980	13,920	6,820	5,380
35-44	176,420	156,620	11,040	5,040	3,720
45-54	161,580	147,980	8,420	2,420	2,760
54-64	155,700	146,940	5,960	1,180	1,620
65+	137,520	131,700	4,060	800	960
Female, Total	1,297,280	1,160,060	81,660	28,600	26,960
14-15	55,080	46,160	5,340	1,920	1,660
16-19	117,980	97,840	10,140	3,620	3,380
20-21	53,540	46,860	3,800	1,440	1,440
25-34	252,220	219,060	18,560	7,860	6,740
35-44	187,160	163,600	13,100	5,440	5,020
45-54	172,720	156,920	10,120	2,620	3,060
54-64	178,500	167,400	7,440	1,640	2,020
65+	204,160	194,980	6,220	1,400	1,566

Source: 1980 Decennial Census

NOTES (1) All resident members of the armed forces and all persons 14 and over who were institutionalized in this state at the time of the 1980 Census are excluded from the population totals appearing in this table.

(2) The population counts by race exclude Hispanics. As a result, each of the race/ethnic categories is mutually exclusive.

Table 5-2

Age/Sex/Race Characteristics of All Family Heads

State A

March 1980

		Race/Ethnic Category[1]			
Age (14 and Older)	Total	White non-Hispanic	Black non-Hispanic	Hispanic	Other non-Hispanic
All Family Heads Total	812,240	727,740	49,400	18,140	16,960
14-15	80	40	40	0	0
16-19	2,940	1,560	780	340	260
20-21	6,740	4,440	1,000	580	720
22-24	26,060	20,620	3,000	1,440	1,000
25-34	170,760	145,360	14,100	5,880	5,420
35-44	172,840	150,840	12,080	5,440	4,480
45-54	158,340	143,600	9,520	2,520	2,700
55-64	151,140	142,660	5,680	1,180	1,620
65+	123,340	118,620	3,200	760	760
Male Heads Total	656,820	607,520	26,720	11,340	11,240
14-15	20	0	20	0	0
16-19	1,000	740	100	80	80
20-21	3,660	3,020	140	220	280
22-24	18,180	16,300	880	480	520
25-34	136,140	122,340	6,720	3,580	3,500
35-44	141,400	127,540	7.080	3,820	3,000
45-54	131,420	121,680	5,840	1,800	2,100
55-64	126,720	120,820	3,840	820	1,240
65+	98,240	95,080	2,100	540	520
Female Heads Total	155,420	120,220	22,680	6,800	5,720
14-15	60	40	20	0	0
16-19	1,940	820	680	260	180
20-21	3,080	1,420	860	360	440
22-24	7,880	4,320	2,120	960	480
25-34	34,620	23,020	7,380	2,300	1,920
35-44	31,400	23,300	5,000	1,520	1,480
45-54	26,920	21,920	3,680	720	600
55-64	24,420	21,840	1,840	360	380
65+	25,100	23,540	1,100	220	240

SOURCE: 1980 Decennial Census

NOTE: (1) The family head counts by race exclude Hispanics. As a result, each of the race/ethnic categories is mutually exclusive.

Table 5-3 presents March 1980 data on the educational attainment of selected age/sex groups in the civilian non-institutional working-age population in State A. Combining these data on the educational characteristics of the population with similar data on the civilian labor force, the employed, and the poverty population would enable the planner to determine the degree of existing relationships between formal educational attainment and labor force behavior, employment probabilities, and the incidence of poverty and other forms of income inadequacy.

Labor Force Analysis

In the rational planning model, knowledge of the size and relative severity of labor market problems experienced by the working-age population in a state or local planning area is a critical first step in the identification of target groups. Analysis of the diverse factors (educational attainment, health barriers, local labor market conditions) influencing these problems is also needed to design appropriate remedial strategies. Data from the Census public use tapes and existing LMI data bases also can be used to estimate and analyze models of the diverse factors influencing labor force participation behavior, unemployment probabilities, and employment and earnings behavior of workers in states and local planning areas.[13] Knowledge of the actual labor force behavior of the working-age population in a state or local area can be used to address the following types of issues:

- the degree of attachment of various demographic and socio-economic subgroups of the working-age population to the labor force;
- the identification of population groups with lower than expected or below average rates of labor force participation, which would reflect the existence of "hidden unemployment" among any subgroup;
- the identification of untapped pools of labor in the local economy to enhance economic development efforts. The successful drawing of these unutilized people into the labor market for employment in new firms located in the local economy or in existing firms substantially expanding their operations will generate larger employment impacts for the local community;
- estimation of the future replacement needs of firms in the local economy due to deaths and retirements of workers in the pre-retirement years (55-64); and[14]
- development of affirmative action strategies by private sector firms and public sector agencies using profiles of the available labor pool by age, sex, and race/ethnic group.

The types of labor force, employment, and unemployment data appearing in Tables 5-4 through 5-9 can be used to produce detailed demographic and socio-economic profiles of the labor force, the employed, and the unemployed populations in states and local planning areas. These data also can be used to identify the size of existing employment problems (open unemployment, hidden unemployment) and their distribution among various demographic and socio-economic subgroups.

Table 5-3

Educational Attainment of the Civilian Noninstitutional Population by Age and Sex

State A

March 1980

Age (16 and Older)	Total	Educational Attainment				
		8 Years or Less	9-11 Years	12 Years	13-15 Years	16 Years
Both Sexes, Total	2,340,560	313,100	420,160	796,160	491,260	419,880
16-21	331,600	13,540	157,800	96,680	62,400	880
22-24	152,880	4,080	1,980	59,420	44,460	28,940
25-44	845,900	50,080	77,540	309,260	169,400	239,620
45-64	668,500	100,280	115,980	250,520	854,840	115,880
65+	341,680	145,120	52,860	79,980	29,160	34,560
Male, Total	1,098,360	145,460	203,500	332,160	174,800	242,440
16-21	163,080	7,800	81,560	46,060	27,280	380
22-24	73,960	2,320	8,700	28,680	20,600	1,360
25-44	406,250	26,020	36,300	126,300	78,600	136,300
45-64	317,280	50,380	55,420	99,980	37,600	73,900
65+	137,520	58,940	21,520	28,140	10,720	18,200
Female, Total	1,242,200	167,640	216,660	464,000	216,460	177,400
16-21	168,520	5,740	76,240	50,620	35,120	500
22-24	78,920	1,760	7,280	30,740	23,860	15,280
25-44	439,380	24,060	41,240	179,960	90,800	103,320
45-64	351,220	49,900	60,560	150,540	48,420	41,980
65+	204,160	86,180	31,340	51,840	18,440	16,360

SOURCE: 1980 Decennial Census.

Data on the age/sex/race composition of the civilian labor force in State A are based on the 1980 decennial Census. These data pertain to the civilian labor force status of the working-age population (16 years and older) of the state as of March 1980.[15] Separate reporting of the labor force data for each of these rather detailed age/sex/race groups allows planners to identify the groups' labor force participation problems at a level of detail sufficient for effective targeting of program services.

The data appearing in Table 5-4 indicate that there were approximately 1.55 million persons (16 years and older) actively participating in the civilian labor force of State A during March 1980. Males accounted for 872,000 of these individuals, or 56.3% of the total number of civilian labor force participants. This share (57.4%) is slightly below that prevailing for the nation during the same time period, suggesting that women play a relatively more important role in State A.[16]

An examination of the age structure of the civilian labor force in State A reveals that 17.3% of all participants were 55 years of age and older and that 14.0% were in the 55-64 age group. Both of these shares were above those prevailing for the nation during March of 1980 (14.3% and 11.4%, respectively).[17] Older workers form an above average share of the civilian labor force in State A. As a result, the relative number of retirements should be above that for the U.S. and generate a relatively greater level of replacement needs during the decade of the 1980's. Knowledge of the specific industries and occupations in which these excess retirements are likely to occur would be useful for human resource policymaking and planning in this state.[18] Similar to the findings of the civilian population analysis, labor force participants from racial and ethnic minority groups tend to be younger than their white counterparts in this state. While only 45% of white civilian labor force participants were under 35 years of age, 51% of black and 58% of Hispanic labor force participants were under 35 years of age. Minority groups will become an increasing source of labor force participants in this state later in the 1980's.

Data on the civilian non-institutional population and the civilian labor force can be combined to estimate civilian labor force participation rates for subgroups of the population of State A. Such estimates appear in Table 5-5 for selected age/sex/race subgroups. During March of 1980, nearly two of every three working-age individuals (66.3%) in the civilian non-institutional population of State A were actively participating in the labor force. The civilian labor force participation rate of males was 79.4%, a rate that was 46% above that of women. In comparison to their respective counterparts in the U.S., both men and women in State A participated in the civilian labor force at a higher rate in March of 1980. While the overall absolute gap between the participation rates of men and women in State A was 25 percentage points, the size of the gap varied sharply by age group. Among teenagers (16-19 years old) and young adults in the 20-21 age group, the civilian labor force participation rates of women were only 5 to 6 percentage points below those of men. The gaps begin to increase in size after age 21, largely reflecting the tendency for some women to withdraw temporarily from the labor force for childbearing and childraising reasons. The increasing exposure of young women to the labor market in this state combined with the national trend toward marriages at later ages should reduce the size of these observed gaps between the participation rates of men and women in that state as it progresses through the decade of the 1980's.[19]

The data from Table 5-5 indicate that, in the aggregate, blacks participate at a slightly higher rate than whites (67.1% vs. 66.2%) and at a rate well above that of Hispanics (67.1% vs 60.9%). An analysis of the participation rates of more detailed age/sex groups reveals that the aggregate data can be somewhat misleading due to substantial differences in the labor force behavior of whites and minorities in various age/sex groups. For example, white males participate in the civilian labor force of State A at rates above those of black males in every age group, with the exception of those 65 and over. The relative size of the gaps in the participation rates of white and black

Table 5-4

Age/Sex/Race Characteristics of the Civilian Labor Force

State A

March 1980

Age (16 and Older)	Total	Race/Ethnic Category[1] White non-Hispanic	Black non-Hispanic	Hispanic	Other non-Hispanic
Both Sexes, Total	1,547,460	1,396,200	91,920	30,540	28,800
16-19	124,400	111,600	7,600	2,740	2,460
20-21	75,760	67,500	4,720	1,800	1,740
22-24	126,600	112,520	8,440	2,960	2,680
25-34	3,888,640	343,820	26,080	10,200	8,540
35-44	295,700	261,760	19,960	7,560	6,420
45-54	268,080	245,360	14,700	3,600	4,420
55-64	217,080	204,960	8,420	1,460	2,240
65+	51,200	48,680	2,000	220	300
Male, Total	872,320	792,160	46,060	18,000	16,100
16-19	64,240	57,720	3,740	1,520	1,260
20-21	38,640	34,040	2,540	1,000	1,060
22-24	66,460	59,520	3,840	1,580	1,520
25-34	220,040	196,300	12,780	6,200	4,760
35-44	170,580	152,460	10,160	4,500	3,460
45-54	153,760	141,720	7,320	2,100	2,620
55-64	126,880	120,220	4,500	920	1,240
65+	31,720	30,180	1,180	180	180
Female, Total	675,140	604,040	45,860	12,540	12,700
16-19	60,160	53,880	3,860	1,220	1,200
20-21	37,120	33,460	2,180	800	680
22-24	60,140	53,000	4,600	1,380	1,160
25-34	168,600	147,520	13,300	4,000	3,780
35-44	125,120	109,300	9,800	3,060	2,960
45-54	114,320	103,640	7,380	1,500	1,800
55-64	90,200	84,740	3,920	540	1,000
65+	19,480	18,500	820	40	120

SOURCE: 1980 Decennial Census.

NOTE: (1) The civilian labor force counts by race exclude Hispanics. As a result, each of the race/ethnic categories is mutually exclusive.

Table 5-5

Civilian Labor Force Participation Rates by Race, Sex and Age (in %)

State A

March 1980

		Race/Ethnic Category[1]			
Age 16 and Older	Total	White non-Hispanic	Black non-Hispanic	Hispanic	Other non-Hispanic
Both Sexes, Total	66.1	66.2	67.1	60.9	63.0
16-19	54.8	57.3	40.0	37.7	39.3
20-21	72.6	74.1	63.1	60.4	60.8
22-24	82.8	84.7	72.8	63.0	71.7
25-34	80.6	81.3	80.3	69.5	70.5
35-44	81.3	81.7	82.7	72.1	73.5
45-54	80.2	80.5	79.3	71.4	75.9
55-64	65.0	65.2	62.8	51.8	61.5
65+	15.0	15.0	19.5	10.0	11.9
Male, Total	79.4	79.7	76.0	76.7	78.9
16-19	57.3	59.6	42.2	41.8	43.8
20-21	75.9	76.9	69.0	64.9	74.6
22-24	90.0	90.7	82.4	77.5	91.6
25-34	95.6	96.2	91.8	90.9	88.5
35-44	96.7	97.3	92.0	89.3	93.0
45-54	95.2	95.8	86.9	86.8	94.9
55-64	81.5	77.2	75.5	78.0	76.[illegible]
65+	23.1	22.9	29.1	22.5	18.8
Female, Total	54.4	54.2	60.1	47.0	50.2
16-19	52.3	55.1	38.1	33.7	35.5
20-21	69.4	71.4	57.4	55.6	47.2
22-24	76.2	78.8	66.3	51.9	55.8
25-34	66.8	67.3	71.7	50.9	56.1
35-44	66.9	66.8	74.8	56.3	59.0
45-54	66.2	66.0	72.9	57.3	58.8
55-64	50.5	50.6	52.7	32.9	49.5
65+	9.5	9.5	13.2	2.9	7.7

Source: 1980 decennial Census.

Note: (1) The civilian labor force counts by race exclude Hispanics. As a result, each of the race/ethnic categories is mutually exclusive males tend to be greatest for the young age groups.[20] Among teenagers, white males participate in the civilian labor force at a rate 41% above that of black males. This gap falls to 11.5% for 20-21 year olds and to 4.8% for 25-34 years olds. Increasing black and Hispanic youths' exposure to the labor market during the high school years and facilitating their transition from high school to the world of work upon graduation would seem to be appropriate strategies for reducing the large existing disparities in participation rates between white and minority youth in State A.

In the aggregate, black women in State A participate in the civilian labor force to a greater degree (60.1%) than either white (54.2%) or Hispanic women (47.0%). The tendency of black women to participate in the labor force at a higher rate than Hispanic women in State A holds true for every age subgroup, with the gaps substantially greater for those women age 22 and over.[21] Black-white differences vary substantially by age. Among 16-24 year olds, white women participate in the labor force to a considerably greater degree than black women, indicating greater difficulties for young black women to gain exposure to the labor market. For all other age groups, black women were more likely than white women to be in the civilian labor force. The latter result reflects both the greater likelihood of black women heading their own household and the lower earnings of other family members that increases pressures for them to enter the labor force to supplement family income.[22]

Our brief analysis of the findings on the labor force participation behavior of the working-age residents of State A has revealed a number of potential pools of "hidden unemployment." The below average participation rates of young blacks and Hispanics and adult Hispanic women and the sharp declines in participation among older persons (age 55 years and older) likely reflect a unique set of labor force barriers that each of these groups face. Overcoming these labor force barriers is a major objective of many human resource programs, including Vocational Education programs at the secondary and post-secondary level, JTPA Title II and III programs, Vocational Rehabilitation, and WIN programs. The decennial Census did not include questions designed to obtain information from non-participants on their current job desires or reasons for not actively seeking work. Thus, the size and characteristics of the individuals comprising the "labor force overhang" or the discouraged worker pool cannot be determined.[23] Data from the decennial Census can be used, however, to identify specific labor force barriers likely to be encountered by non-participants.

Unemployment Analysis

Once the labor force behavior of residents of the planning area has been analyzed and potential labor force problems identified, human resource planners should examine existing unemployment problems. Data on the number and demographic/socio-economic characteristics of the unemployed residents in the state and local planning areas can be used to address each of the following planning and policymaking issues:

- the degree of utilization of the available labor supply in the local planning areas to determine open unemployment which is one major type of underutilization problem that human resource programs are designed to combat;
- the relative severity of unemployment problems experienced by different subgroups for purposes of targeting services to residents;
- target group selection for different human resource programs which may choose to focus their service upon those subgroups experiencing higher relative rates of unemployment or those encountering longer durations of unemployment; and

- the allocation of existing resources to different substate areas or to individual communities within a local planning area based on the severity of unemployment in these areas.

The most current data on unemployment levels in local areas are those generated by the Local Area Unemployment Statistics program (LAUS). The LAUS data unfortunately do not provide any demographic characteristics data; however, they are an important source of information for policymaking, planning, and program evaluation purposes. National monies for a number of human resource programs, including job training, and economic development programs, are allocated to states and local service delivery areas on the basis of formulas containing elements based on unemployment data.[24] For example, allocations for JTPA Title II programs, are based on the unemployment estimates derived from the LAUS program.[25] National economic development and job creation programs frequently have targeted monies on high unemployment areas identified through the use of LAUS data, and the identification of economically depressed areas for vocational education planning under the Carl D. Perkins Vocational Education Act will be based in part upon local unemployment data generated by the LAUS program.[26] Finally, development of performance benchmarks for JTPA performance indicators, such as entered employment rates, are based upon unemployment data inputs from the LAUS program.[27] The LAUS data are also frequently used in allocating state monies to local areas for job training and economic development programs.[28]

Detailed data on the demographic and socio-economic characteristics of the unemployed residents in states and local planning areas are available from the 1980 decennial Census and are updated by most states. Data on the distribution of the individuals who were unemployed during March 1980 in State A by age, sex, race/ethnic group are presented in Table 5-6. The estimates appearing in Table 5-6 reveal that there were 71,620 unemployed persons (16 years and older) in State A during March 1980. Males accounted for 40,120 of those unemployed individuals, or 56.0% of the total number of unemployed persons. This ratio is nearly identical to the male share of the civilian labor force in this state (56.3%). The near equality between these two shares implies that male and female labor force participants in this state faced nearly identical unemployment rates during March 1980. An examination of the data on the distribution of the unemployed population by race/ethnic group reveals that minorities (black, Hispanic, and other) accounted for nearly 20% of the total number of unemployed, despite the fact that they represented slightly less than 10% of all civilian labor force participants in the state. Unemployment problems of minorities are relatively twice as severe as those of whites in this state.

Data on the age/sex/race characteristics of the unemployed in Table 5-6 can be combined with the data on the demographic characteristics of the civilian labor force in Table 5-4 to produce estimates of the demographic structure of unemployment rates. These estimates appear in Table 5-7. The overall unemployment rate in State A during March of 1980 was 4.6%. Unemployment rates in this state appear to be strongly associated with the age of civilian labor force participants. Unemployment rates fall with age until the 55-64 age group is reached, at which point the unemployment rate begins to rise.[29] The tendency for unemployment rates to decline with age reflects both the greater job tenure of older workers and their lower susceptibility to layoffs when reductions in force occur.[30] The rise in unemployment rates among workers 55 years and older is likely attributable to greater difficulties encountered by older workers, both in becoming re-employed after being dislocated from their previous jobs and in transitioning into part-time jobs after retiring from their previous full-time positions.

Table 5-6

Age/Sex/Race Characteristics of the Unemployed

State A

March 1980

		Race/Ethnic Category[1]			
Age (16 and Older)	Total	White non-Hispanic	Black non-Hispanic	Hispanic	Other non-Hispanic
Both Sexes, Total	71,620	57,820	8,900	2,560	2,340
16-19	13,420	10,620	1,960	460	380
20-21	5,740	4,660	680	120	280
22-24	7,920	6,180	1,140	360	240
25-34	16.940	12,840	2,460	1,000	640
35-44	9,000	6,840	1,380	360	420
45-54	8,020	6,940	620	240	220
55-64	7,520	6,920	460	0	140
65+	3,060	2,820	200	20	20
Male, Total	40,120	32,340	5,000	1,420	1,360
16-19	7,760	6,140	1,060	260	300
20-21	3,620	2,920	440	80	180
22-24	4,880	3,880	700	160	140
25-34	9,040	6,900	1,300	520	320
35-44	4,666	3,420	800	220	220
45-54	4,240	3,640	320	160	120
55-64	4,120	3,760	280	0	80
65+	1,800	1,680	100	20	0
Female, Total	31,500	25,480	3,900	1,140	980
16-19	5,560	4,480	900	260	80
20-21	2,120	1,740	240	40	100
22-24	3,040	2,300	440	200	100
25-34	7,900	5,940	1,160	480	320
35-44	4,340	3,420	580	140	200
45-54	3,780	3,300	300	80	100
55-64	3,400	3,160	180	0	60
65+	1,260	1,140	100	0	20

SOURCE: 1980 Decennial Census.

NOTE: (1) The unemployment counts by race exclude Hispanics. As a result, each ofthe race/ethnic categories is mutually exclusive.

Table 5-7

Unemployment Rates by Race, Sex, and Age (in %)

State A

March 1980

Age 16 and Older	Total	Race/Ethnic Category[1] White non-Hispanic	Black non-Hispanic	Hispanic	Other non-Hispanic
Both Sexes, Total	4.6	4.1	9.7	8.4	8.1
16-19	10.8	9.5	25.8	16.8	15.4
20-21	7.6	6.9	14.4	6.7	16.1
22-24	6.3	5.5	13.5	12.2	9.0
25-34	4.5	3.7	9.4	9.8	7.5
35-44	3.0	2.6	6.9	4.8	6.5
45-54	3.0	2.8	4.2	6.7	5.0
55-64	3.5	3.4	5.5	0.0	6.3
65+	6.0	5.8	10.0	10.0	6.7
Male, Total	4.6	4.1	10.9	7.9	8.4
16-19	12.1	10.6	28.3	17.1	23.8
20-21	9.4	8.6	17.3	8.0	17.0
22-24	7.3	6.5	18.2	10.1	9.2
25-34	4.1	3.5	10.2	8.4	6.7
35-44	2.7	2.2	7.9	4.9	6.4
45-54	2.8	2.6	4.4	7.6	4.6
55-64	3.2	3.1	6.2	0.0	6.5
65+	5.7	5.6	8.5	11.1	0.0
Female, Total	4.7	4.2	8.5	9.1	7.7
16-19	9.2	8.3	23.3	16.4	6.7
20-21	5.7	5.2	11.0	5.0	14.7
22-24	5.1	4.3	9.6	14.5	8.6
25-34	4.7	4.0	8.7	12.0	8.5
35-44	3.5	3.1	5.9	4.6	6.8
45-54	3.3	3.2	4.1	5.3	5.6
55-64	3.8	3.7	4.6	0.0	6.0
65+	6.5	6.2	12.2	0.0	16.7

Source: 1980 decennial Census

Note: (1) The unemployment data by race exclude Hispanics; thus, each of the race/ethnic groups appearing in this table is mutually exclusive.

As suggested in the above discussion of the sex distribution of unemployment in State A, the aggregate unemployment rates of men (4.6%) and women (4.7%) were nearly identical.[31] The female/male differential, however, was not uniform across all age groups. Young males 16-24 years old experienced unemployment rates that were above those of their female counterparts, while women in every other age group encountered unemployment rates above those of men. The higher unemployment rates of young males were influenced in part by recent shifts in the industrial structure of this state's economy. Job growth was more rapid in private services and retail trade sectors which generated above average shares of employment opportunities for young women in this state.

The aggregate unemployment rates of racial/ethnic minority groups in State A were 2 to 2.4 times as high as those experienced by whites in March 1980. The relative size of these racial unemployment differentials tended to vary by sex and age. For example, among males, blacks experience an overall unemployment rate of 10.9% that was nearly 2.7 times as high as that of whites and nearly 40% above that of Hispanics. Young black male workers (16-24 years old) encountered unemployment rates in the 18-28% range, rates that were between 2 to 3 times as high as those of young white labor force participants.[32] Among women, black labor force participants experienced an unemployment rate of 8.5% or approximately 2 times as high as that encountered by white women; however, black women typically tended to be unemployed at rates below those of Hispanic women in each age group. The existence of both below average participation rates and above average unemployment rates for Hispanic women strongly suggest the existence of structural barriers to their employability, such as language barriers, basic skill deficiencies, and formal educational deficiencies. The data available on the public use tapes from the 1980 decennial Census can be used to examine these barriers in greater detail.

Employment Analysis

To complete an analysis of the labor force behavior and employment status of residents of State A, data on the demographic characteristics of the employed working-age population in March 1980 are presented in Table 5-8. At the time of the 1980 Census, there were approximately 1.48 million employed persons (16 years and older) in State A. Of this total, 832,200 were males, representing 56.4% of all employed persons. Women in this state accounted for the remaining 43.6% of the total number of employed persons, an employment share slightly above that prevailing for women nationwide.[33] Knowledge of the industrial and occupational characteristics of jobs held by women in this state would be helpful in explaining their relatively high share of employment. The industrial structure of employment in this state may be more conducive to the employment of women, the occupational staffing patterns of state industries may be characterized by relatively higher shares of employment in traditional female occupations, or women in this rate may be more successful than their national counterparts in gaining access to jobs in non-traditional occupations.[34]

A more useful method of examining the employment status of various demographic and socio-economic subgroups of the working-age population involves estimating employment/population (E/P) ratios for each subgroup. Such estimates can be obtained by dividing the number of employed persons in a given population subgroup by the size of the working-age civilian non-institutional population in that subgroup. The size of the employment/population ratio for a subgroup is influenced jointly by its civilian labor force participation rate and it unemployment rate. The higher a subgroup's civilian labor force participation rate and the lower its unemployment rate, the higher will be its employment/population ratio.[35] Knowledge of the sizes of the employment/population ratios of various population subgroups is critical for the effective targeting of many

Table 5-8

Age/Sex/Race Characteristics of the Employed

State A

March 1980

Age (16 and Older)	Total	Race/Ethnic Category[1] White non-Hispanic	Black non-Hispanic	Hispanic	Other non-Hispanic
Both Sexes, Total	1,475,840	1,338,380	83,020	27,980	26,460
16-19	110,980	100,980	5,640	2,280	2,080
20-21	700,200	62,840	4,040	1,680	1,460
22-24	118,680	106,340	7,300	2,600	2,440
25-34	371,700	330,980	23,620	9,200	7,900
35-44	286,700	254,920	18,580	7,200	6,000
45-54	260,060	238,420	14,080	2,260	4,200
55-64	209,560	198,040	7,960	1,460	2,100
65+	48,140	45,860	1,800	200	280
Male, Total	832,200	759,820	41,060	16,580	14,740
16-19	56,480	51,580	2,680	1,260	960
20-21	35,020	31,120	2,100	920	880
22-24	61,580	55,640	3,140	1,420	1,380
25-34	211,000	18,940	11,480	5,680	4,440
35-44	165,920	149,040	9,360	4,280	3,240
45-54	149,520	138,080	7,000	1,940	2,500
55-64	122,760	116,460	4,220	920	1,160
65+	29,920	28,600	1,080	160	180
Female, Total	643,640	578,560	41,960	11,400	11,720
16-19	54,500	49,400	2,960	1,020	1,120
20-21	35,000	31,720	1,940	760	580
22-24	57,100	50,700	4,160	1,180	1,060
25-34	160,700	141,580	12,140	3,520	3,460
35-44	120,780	105,880	9,220	2,920	2,760
45-54	110,540	100,340	7,080	1,420	1,700
55-64	86,800	81,580	3,740	540	940
65+	18,200	17,360	720	40	100

SOURCE: 1980 Decennial Census.

NOTE: (1) The employment counts by race exclude Hispanics; thus, each of the race/ethnic categories appearing in this table are mutually exclusive.

Table 5-9
Employment/Population Ratios by Race, Sex and Age State A March 1980 (in %)

Age	(A) Total	(B) White	(C) Black	(D) Hispanic	(E) Other
Both Sexes, 16 and Over	63.1	63.5	60.6	55.8	57.9
16-19	48.9	51.9	29.7	31.4	33.2
20-21	67.1	69.0	54.0	56.4	51.0
22-24	77.6	80.1	62.9	55.3	65.2
25-34	77.1	78.2	72.7	62.3	65.2
35-44	78.9	79.6	77.0	68.7	68.6
45-54	77.8	78.2	75.9	66.7	72.2
55-64	62.7	63.0	59.4	51.8	57.8
65+	14.1	14.0	17.5	9.1	11.1
Males, 16 and Over	75.8	76.4	67.8	70.6	72.2
16-19	50.3	53.3	30.2	34.6	33.3
20-21	68.8	70.3	57.1	59.7	62.0
22-24	83.3	84.8	67.4	69.6	83.1
25-34	91.7	92.9	82.5	83.3	82.5
35-44	94.0	95.2	84.8	84.9	87.1
45-54	92.5	93.3	83.1	80.2	90.6
55-64	78.8	79.3	70.8	78.0	71.6
65+	21.8	21.6	26.6	20.0	18.8
Females, 16 and Over	51.8	51.9	55.0	42.7	46.3
16-19	47.4	50.5	29.2	28.1	33.1
20-21	65.4	67.7	51.1	52.8	40.3
22-24	72.4	75.4	59.9	44.3	51.0
25-34	63.7	64.6	65.4	44.8	51.3
35-44	64.5	64.7	70.4	53.7	55.0
45-54	64.0	63.9	70.0	54.2	55.6
55-64	48.6	48.7	50.3	32.9	46.5
65+	8.9	8.9	11.6	2.9	6.4

Source: 1980 Census

employment and training services. A number of human resource programs are designed to reduce the size of existing differentials between the employment/population ratios of various population subgroups, including those between whites and minorities and between economically disadvantaged and non-disadvantaged members of the working-age population.

Estimates of the employment/population ratios of age/sex/race subgroups of the working-age population in State A are presented in Table 5-9. The overall employment/population ratio was 63.1% during March 1980, implying that 63 of every 100 persons in the civilian non-institutional working-age population of this state were employed in March 1980. The E/P ratio of males was 75.8% while that for women was 51.8%, a gap of 24 percentage points or 46.3%. Practically all of the estimated difference between the E/P ratios of men and women in this state can be attributed to the higher rates of labor force participation among men.

For all age and sex groups combined, the employment/population ratio of whites (63.5%) was above that of both blacks (60.6%) and Hispanics (55.8%). The absolute and relative sizes of these differences, however, vary quite sharply by age and sex group. For example, among men, the E/P ratios of whites exceed those of blacks in every age group with the exception of those over age 65. The relative sizes of these gaps between whites and blacks are highest for males in the younger age groups (16-24 years old). As the findings in Table 5-10 below reveal, white teenagers were 76.5% more likely than black teens to have been employed in March 1980. The size of the relative difference falls to 25.5% for 22-24 year olds and to 12.6% for those age 25-34 years old. A reduction in the size of these differences, particularly for young black and Hispanic males, will require policies to strengthen the labor force attachment of young minority males and reduce the probability of their being unemployed when they do actively participate in the labor force. A variety of education, training and job development/placement programs aimed at both the supply side deficiencies of youth and the demand for them by employers will likely be needed to improve employment opportunities for young minority males in the states.[36]

Table 5-10
Relative Size of E/P Gap Between
Whites and Blacks
State A
March 1980

Age Group (In years)	Relative Size of E/P Gap Between Whites and Blacks (%)
16-19	76.5
20-21	23.1
22-24	25.5
25-34	12.6
45-54	12.2

Among women for all age groups combined, black females have the highest employment/population ratio (55%), followed by whites (51.9%) and Hispanics (42.7%). The size of the estimated differences between the E/P ratios of white and black women, however, vary sharply by age group. Among 16-24 year olds, white women are employed at rates 26% to 73% above those of black women. Among 25-34 year olds, there is near equality between the E/P ratios of white and black women, and, for all other age groups, the E/P ratios of black women exceed those of white women as a result of the higher rates of labor force participation among older black women. With one minor exception, Hispanic women in each age group are employed at rates below those of both white and black women. The relative size of the gaps between the E/P ratios of white and Hispanic women are quite large (30 to 80 percent) for women below the age of 35. The sharply lower E/P ratios of Hispanic women in this state are influenced by both relatively low labor force participation rates and high rates of unemployment.

Labor Force Trend Analysis

The 1980 Census data, while providing extraordinarily comprehensive data on the labor force behavior and employment status of detailed population subgroups, represent a snapshop picture of data from only one particular point in time. Changing demographic and economic developments at the state and local level produce changes in the size and composition of the civilian labor force and in the numbers and demographic characteristics of individuals experiencing employment problems. Knowledge of these trends is critical to the identification of existing human resource problems, the selection of target groups, and the design of appropriate human resource strategies.

Data from CPS and LAUS can be used to track trends in aggregate labor force developments for states and local labor areas.[37] For example, annual average estimates of the size of the working-age civilian non-institutional population, the civilian labor force, and the number of employed and unemployed persons in State A for the years 1981 to 1983 from the CPS are presented in Table 5-11.

Between 1981 and 1983, the civilian non-institutional population of working-age people age 16 and older in State A was estimated to have increased by 35,000 or 1.5%. During the same time period, the civilian labor force of this state expanded by 19,000 or by only 1.2%. As a result of the slightly lower rate of growth in the civilian labor force, the aggregate civilian labor force participation rate of this state declined by .1% between 1981 and 1983. Nationally, the annual average civilian labor force participation rate edged up by .1% during the same time period.

The total number of employed persons (age 16 years and older) in State A also increased between 1981 and 1983, rising by 21,000 or 1.4%. Since the number of employed persons grew at a rate slightly above that of the civilian labor force, the total number of unemployed persons fell slightly, leading to an estimated reduction of .2% in the state's aggregate unemployment rate between 1981 and 1983.[38] The trend in the state's aggregate unemployment rate was not uniform throughout this time period. The unemployment rate of State A increased to nearly 7.0% during the severe national recession of 1982; however, the estimated rise in the unemployment rate was well below that of the nation, which was estimated to have increased from 7.6% in 1981 to 9.7% in 1982.[39] The findings from Table 5-11 suggest that State A's economy was not substantially affected by the national economic recession. While total employment declined nationally by nearly 900,000 between 1981 and 1982, the total number of employed persons in State A was estimated to have actually increased by 6,000.

Data on aggregate labor force developments can mask important differences in labor force trends for different population subgroups. To examine changes over time in the labor force behavior of key population subgroups in State A, annual average estimates of the labor force status of men, women, teenagers, whites, and blacks from the CPS are presented in Table 5-12. These data can be used to obtain information on the characteristics of civilian labor force participants and the employed population.[40]

Table 5-11

Civilian Labor Force Trends

State A

Annual Averages 1981-83
(In Thousands)

Labor Force Status	1981	1982	1983	Absolute Change, 1981-83	Percentage Change, 1981-83
Total Civilian Noninstitutional Population	2,391	2,425	2,426	35	+1.5
Civilian Labor Force	1,589	1,608	1,608	19	+1.2
Employed	1,491	1,497	1,512	21	+1.4
Unemployed	98	111	96	-2	-2.0
Civilian Labor Force Participation Rate	66.4%	66.3%	66.3%		
Unemployment Rate	6.2%	6.9%	6.0%	-.2%	
Employment/ Population Ratio	62.4%	61.7%	62.3%	-.1%	

Source: Current Population Survey, 1981 to 1983.

Table 5-12
Civilian Labor Force Activity
Status of the Civilian Noninstitution Population in Selected Age/Sex/Race Groups
(in %)

State A

Age/Sex Group	1981	1982	1983	Absolute Percentage Point Change 1981-83
Men 16 years and Older				
• Civilian Labor Force Participation Rate	79.2	78.5	77.8	-1.4
• Employment/ Population Ratio	75.0	72.9	72.9	-2.1
• Unemployment Rate	5.3	7.1	6.4	+1.1
Women 16 years and Older				
• Civilian Labor Force Participation Rate	55.1	55.4	55.8	+ .7
• Employment/ Population Ratio	51.0	51.7	52.7	+1.7
• Unemployment Rate	7.4	6.7	5.5	-1.9
Teenage 16-19 years				
• Civilian Labor Force Participation Rate	60.9	60.1	61.0	+0.1
• Employment/ Population Ratio	50.4	49.1	51.0	+0.6
• Unemployment Rate	17.2	18.3	16.5	-0.7
White				
• Unemployment Rate	5.4	6.2	5.3	-0.1
Black				
• Unemployment Rate	17.7	16.7	16.0	-1.7

Source: Current Population Survey, 1981 to 1983.

There are a number of key differences in the trends for men and women between 1981 and 1983. As was true nationally, the annual average civilian labor force participation rate of men in this state declined from 79.2% to 77.8%, while the rate of women steadily increased from 55.1% to 55.8%.[41] As a result, women increased their share of the state civilian labor force from 43.6% in 1981 to 44.0% in 1983.[42] Unemployment rates moved in opposite directions for men and women between 1981 and 1983. While the female unemployment rate fell from 7.4% to 5.5%, the male unemployment rate rose from 5.3% to 6.4%. Females in State A, thus, encountered unemployment rates during 1982 and 1983 that were below those of men, a development similar to that occurring throughout the nation.[43]

The labor force behavior of teens (age 17-19) in State A did not change markedly between 1981 and 1983. For example, the participation rate of teens declined during the recession year of 1982, but rose during 1983 back to essentially the same rate prevailing in 1981. The overall unemployment rate of teens rose to 18.3% in 1982, then fell to 16.5% in 1983. As a result of the slight rise in the participation rate and a decline in the unemployment rate, the employment/population ratio of teens is estimated to have increased to 51.0% by 1983, a slight improvement over the 1981 performance.[44]

Black labor force participants encountered unemployment rates that were approximately 2.4 times as high as those of whites. The data on annual average unemployment rates for whites and blacks at the bottom of Table 5-11 reveal that blacks in State A continued to experience sharply higher relative rates of unemployment during the 1981 to 1983 period.[45] Estimated black unemployment rates ranged from 2.7 to 3.3 times those of whites during this period. While the estimated unemployment rates of both groups edged down slightly between 1981 and 1983, the black unemployment rate remained 3 times as high as that of whites in the latter year. More detailed subgroup analysis for blacks in this state is not feasible due to the small sample of the black labor force contained in the CPS.

The most timely data on aggregate labor force, employment, and unemployment developments in most states and local labor areas are those produced by the monthly LAUS program.[46] However as noted earlier, these data do not provide any information on the demographic or socio-economic characteristics of the civilian labor force or of members of the employed and unemployment populations.[47] In Table 5-13, LAUS data are presented on the estimated size of the civilian labor force, the number of employed persons, and the number of unemployed persons for State A and Local Labor Area A, the largest labor area within the state. These estimates are presented for June 1983, May 1984, and June 1984 to allow comparisons of year-to-year and recent over-the-month seasonal developments in the labor force and employment.

The findings indicate that the civilian labor force of State A has expanded quite rapidly during the past year, rising by nearly 51,000 or 3.1% between June 1983 and June 1984. This rate of labor force growth is well in excess of that prevailing during the first few years of the 1980's. Total employment increased more rapidly during this twelve month period, with 76,000 additional individuals acquiring jobs, including self-employment. As a result of this explosive rate of job growth (5%), the state's unemployment rate declined sharply from 6.0% to 4.3% achieving a condition of "full employment" by June 1984. Growth in the civilian labor force and in total employment also occurred in Labor Area A, although the rates of increase were somewhat below those for the state as a whole. Due to the fact that employment growth outstripped the increase in the civilian labor force, the unemployment rate of Labor Area A declined to 4.0% by June 1984.

Table 5-13

Labor Force Trends

State A and Local Labor Area A

June 1983, May 1984 and June 1984
(In Thousands, Not Seasonally Adjusted)

				Absolute Change From:	
State A	June 1983	May 1984	June 1984	May 1984	June 1983
Civilian Labor Force	1,631.7	1,646.8	1,682.2	+35.4	+50.5
• Employment	1,534.5	1,578.6	1,610.4	+31.8	+75.9
• Unemployment	97.2	68.2	71.8	+ 3.6	-25.4
• Unemployment Rate	4.3	4.1	6.0	XXXX	XXXX
Local Labor Area A					
Civilian Labor Force	394.2	395.2	404.0	+ 8.8	+ 9.8
• Employment	372.9	387.8	379.9	+ 7.9	+14.9
• Unemployment	21.3	15.3	16.2	+ 0.9	- 5.1
• Unemployment Rate	5.4	3.9	4.0	XXXX	XXXX

Source: Local Area Unemployment Statistics Program.

Short-Term Labor Force Projections Analysis

In addition to analyzing recent trends in state or local labor force developments, human resource program planners should also, to the extent possible, assess the short-term projected outlook for the local labor force. A model called the Labor Market Projections Model developed by U.S. DOL's ETA can be used to provide short-term projections of the demographic characteristics (age, sex, race) of the working-age population, civilian labor force participants, employed, and unemployed persons in states and local planning areas. The projections are based on updates of the 1980 Census data and the judgements of labor market analysts. An example of the types of data outputs for State A available from this projections model is presented in Table 5-14 below.[48]

The projected size of the total civilian labor force in State A during Program Year (PY) 1985 is 1.69 million.[49] The number of women in the civilian labor force is projected to increase to 749,000, raising their share of the civilian labor force to 44.3% during the forthcoming year. The annual average unemployment rate of this state during Program Year 1986 is projected to be 4.5%, indicating a continuation of the "near full employment" conditions prevailing in the state's labor market during a major portion of calendar year 1984. Teenagers are projected to continue to experience an unemployment rate nearly 3 times that of the entire civilian labor force, although the projected unemployment rate for teens of 12.6% is well below the rates prevailing for teens throughout the nation in recent months (18.9% during calendar year 1984).[50] Male and female labor force participants are projected to experience nearly identical unemployment rates, similar to the situation prevailing at the time of the 1980 Census. Finally, non-whites are projected to experience an unemployment rate of 11.4%, nearly 3 times the rate projected for white labor force participants in this state.

Findings on the projected structure of unemployment rates for PY 1985 from Table 5-14 are in close accord with those of the 1980 decennial Census and the trends from CPS data for the period 1981-1983. For example, young workers and minorities face unemployment rates well in excess of the average. Targeting services to high school dropouts, minority youth, and Hispanic women in all age groups who are experiencing continued high rates of unemployment in a near full employment economy is clearly appropriate if the local programs are designed to combat structural unemployment problems. When a state's general labor market environment is as favorable as that of State A, then a high number of job vacancies are likely to exist and the potential exists for true skills shortages to arise in a growing number of occupations. Under such conditions, education and training programs can contribute more effectively to reducing the number of unemployed persons in the labor market and actually expanding the number of employed persons.[51]

Table 5-14
Labor Force Trends
State A
Projected 1985

	Civilian Labor Force	Total Employment (in thousands)	Unemployment Number	Unemployment Rate
State Total	1690	1614	76	4.5
Age 16-19	119	104	15	12.7
20-21	78	72	6	7.4
22-54	1219	1175	44	3.6
55-64	223	215	8	3.8
65+	51	48	3	5.8
Male	941	899	42	4.4
Female	749	715	34	4.5
White	1550	1490	60	3.9
Nonwhite	140	124	16	11.4

Source: Labor Market Projections Model.

Labor Force Barriers of Economically Disadvantaged Non-Participants

Given the relatively high fractions of the economically disadvantaged population who are not actively participating in the civilian labor force in State A, it is desirable to obtain additional information on this group of non-participants to determine their desire for employment and perceived barriers to their active participation. Providing employment and training services to this group seems particularly appropriate, given the fact that Title II JTPA programs and selected vocational education programs are expected to strengthen the labor force attachment of the economically disadvantaged, improve their employability, and increase their earned incomes in the post-program period.

Previous evaluations of vocational education, MDTA, and CETA training programs have indicated increased labor force attachment to be a major determinant of gains in earned incomes of participants.[52] Previous studies of the job desires of poor and economically disadvantaged persons (16 years and older) have revealed that relatively high fractions of them do express a desire for immediate employment. Findings from the March 1980 CPS for the nation as a whole indicate that 22% of all poor family heads who were outside of the labor force at the time of the survey wished to be employed. This ratio was 4.4 times as high as that for all non-poor family heads throughout the nation.[53]

Ideally, local human resource program planners would have access to state and local information on the current job desires of these economically disadvantaged labor force non-participants, their reasons for not actively seeking work, and barriers to their active participation in the labor force. Only national data on the job desires of non-participants are available from one-fourth of the households in the CPS monthly sample. This sample is too small for any detailed state or substate analysis. Timely and reliable data on economically disadvantaged persons not participating in the labor force are not available at the state or local level.

States can, however, use the public use tapes from the 1980 Census which did identify the labor force status of economically disadvantaged individuals to generate profiles of non-participants eligible for enrollment in various human resource programs, such as JTPA programs. Although the long-form questionnaire did not contain any questions related to the job desires of these non-participants or their reasons for not currently seeking work; it did capture information on the work experience of respondents, their educational attainment, English-speaking abilities, health status, transportation barriers, and the number and age distribution of their dependents.[54] The profiles can be used to describe the types of barriers that they can be expected to encounter in their attempts to actively participate in the labor force and provide a general indication of the education, training, and support services that they would likely need to become employable. These statistical profiles of the economically disadvantaged are not intended to serve as a substitute for rigorous client assessment which should be carried out by program staff on an individual basis to determine the appropriate mix of employability services required to achieve immediate and longer-term career goals.

An example of such a profile presented in Table 5-15 provides information on selected labor force barriers of those economically disadvantaged family heads who were not actively participating in the civilian labor force of State A in March 1980. Analysis of the findings on previous work experience of those individuals reveals that 44% had not been employed at all during 1979. The size of this ratio varied fairly sharply by sex of family head. Only 37.5% of the economically disadvantaged male family heads had not worked during 1979 while nearly 52% of female family heads did not work at any time during that year. Overall, 23% of these family heads had not worked at any time since 1975.

A high fraction of these economically disadvantaged family heads (44%) had not graduated from high school, suggesting a potential need for basic skills and GED training

Table 5 -15
Labor Force Barriers of Economically Disadvantaged Family Heads Not Participating in the Civilian Labor Force
State A
March 1980

	Economically Disadvantaged Family Head Not in Labor Force		
Labor Force Barriers	Total (%)	Male (%)	Female (%)
No Work Experience in:			
Past year	44.0	37.5	51.5
Past two years	30.0	24.0	38.0
Past five years	22.5	12.0	33.2
Education:			
Did not graduate from high school	43.8	47.0	40.3
Health Condition:			
Limits amount of work that can be done	22.3	28.0	16.1
Prevents from working			
Language:			
Limited English speaking ability	3.5	3.9	3.1
Size of Family:			
2-3 persons	60.4	50.0	71.5
4-5 persons	26.9	32.5	21.0
6 or more	12.7	17.5	7.5
Dependent Children present in Home:			
Child under age 6	30.0	19.5	40.8

Source: 1980 Census.

to enable them to successfully participate in vocational training or on-the-job training programs. The findings on limited English-speaking ability, health problems, and the presence of young children in the home can be used to provide general indications of the need for supportive services in the areas of English as Second Language instruction, health, and child care.

Industry Employment Analysis

One of the major tasks of state and local human resource planners is to identify the structure of job opportunities by industry and analyze trends in industry employment over time. Such an analysis is designed to provide insights into the current level and industrial composition of employment and to identify the dominant sources of employment at the state and local level. Planners also need information on recent trends in employment by industry to identify the overall size of local employment changes and the specific industry sources of employment growth/decline over time. Industry structure shifts have significant implications for the occupational employment structure and, hence, education and training programs.

Table 5-16 presents data from the Current Employment Statistics program on the industrial structure of "State A's" economy during 1983. An examination of the findings in this table indicate that the vast bulk of wage and salary employment in this state is concentrated within manufacturing industries (28.3%), service industries (26.9%), and the trade sector (22.0%). Together, these three industrial sectors account for slightly more than 77% of total wage and salary employment in the state.

Data appearing in Table 5-16 also provide a more detailed description of the state's industrial structure of wage and salary employment at the two-digit Standard Industrial Classification (SIC) level of detail. For example, Table 5-16 reveals that one-fifth of all manufacturing wage and salary employment in this state is concentrated in transportation equipment manufacturing industries (SIC 37). This state's service sector is clearly dominated by health services (SIC 80) and educational services since well over half of all service sector employment in the state is found in these two service industries.

More detailed analysis of industry employment structure and trends can be undertaken at the three-digit SIC level with data produced from the ES-202 system. For example, analysis of the three-digit SIC composition of the state's transportation equipment industry (SIC 37) is provided in Table 5-16. An examination of the data appearing in this table reveals that motor vehicle manufacturing (SIC 371) is not the dominant transportation equipment employer in the state. Instead, aircraft and aircraft parts producers (SIC 372) and guided missile and space vehicle manufacturers (SIC 376) are the major transportation equipment employers in this state.

The more disaggregated analyses of industry employment structure and trends are useful for the following two reasons. First, while a given two-digit SIC industry may be experiencing employment growth, each of the individual three-digit SIC industries comprising this two-digit industry will not likely be growing at the same rate and, in fact, some may not be experiencing any positive employment growth. More detailed knowledge of the specific sources of growth is desirable for OJT marketing, job placement, and job development activities. Secondly, the occupational structures of the three-digit SIC industries will frequently differ substantively from one another. Motor vehicle manufacturers use a different mix of skills than aircraft manufacturers, and these differences in occupational composition have important implications for the selection and design of occupational training programs.

Table 5-16
Distribution of Wage and Salary Employment by Selected Two and Three Digit SIC Industries
State A
1983

Industry Sector by SIC	Employment Level	Percent Distribution (%)	Share of Two-Digit Employment Within Major Industry Group (%)	Share of Three-Digit Employment Within Two-Digit Group (%)
Total	1,409,723	100.0	XX	
Construction	54,077	3.8	100.0	
15	12,971		24.0	
16	9,308		17.2	
17	31,798		39.1	
Manufacturing	402,386	28.3	77.2	
27	25,074		6.2	
28	22,056		5.5	
34	55,753		13.9	
35	47,417		11.8	
36	50,928		12.7	
37	81,714		20.3	95.3
371	15,444			18.9
372	27,455			33.6
373	12,914			15.8
376	22,059			27.0
378	27,559		6.8	
Transporation Communication and Utilities	60,961	4.3	68.1	
42	12,471		20.5	
48	17,807		29.2	
49	11,218		18.4	
Trade	313,657	22.0	60.2	
50	42,893		13.7	
53	32,388		10.3	
54	43,372		13.8	
58	71,424		22.4	
Finance, Insurance and Real Estate	115,782	8.1	58.3	
63	57,246		49.4	
65	10,205		8.9	
Services	382,336	26.9	74.4	
73	64,266		16.8	
80	110,143		28.8	
82	110,054		28.8	
Government	80,524	5.6	XX	

SOURCE: Current Employment Statistics Program and the ES-202 data base.

Assessing recent trends in industry employment is an important second step in determining employment opportunities. Such trend analysis would ideally be conducted on a detailed two- and three-digit SIC basis at the state or local level. Current Employment Statistics (CES) survey data pertaining to rapidly expanding two-digit SIC industries are included in Table 5-17. By comparing the 1977 and 1983 employment levels of these industries their absolute and relative job generating performance can be identified. Findings appearing in Table 5-17 reveal that overall wage and salary employment in the state expanded by nearly 164,000 jobs, or 13.2%, over the six year period covered by the analysis. The nine high growth industries included in the table accounted for over three quarters of net wage and salary job growth in the state over this six-year period. This finding clearly indicates a need to focus further analysis of recent employment developments upon these industries.

Human resource planners for agencies providing on-the-job training and short-term classroom training programs need to repeat this analysis for more recent time periods, i.e., employment trends over the most recent year for which data are available. Industries experiencing current growth as well as growth over the past 5-6 years should be the best candidates for training programs since payroll expansion will have been more continuous, and external recruitment efforts to fill expansion needs will be taking place. Those industries experiencing current growth that have not achieved net employment change over the past few years may simply be reabsorbing those pools of labor laid off during periods of economic slack. Firms in which collective bargaining agreements exist frequently have to abide by recall rights provisions of those agreements before hiring new workers for employment in the company.

Data on the growth rates of total wage and salary employment and employment in each of these nine industries appear in the fourth column. Examination of these data reveals that each of these industries grew at an above average pace between 1977 and 1983. Total nonagricultural wage and salary employment in State A expanded by 13.2% over this six-year period while the growth rates of the nine industries in Table 5-17 ranged from a low of 16.9% to a high of 55.2% during the same time period. The business services and chemical manufacturing industries grew at extraordinarily rapid rates of 55.2% and 43.1%, respectively, over this six-year period. On an annual average basis, the business services industry grew by 7.6% while chemical manufacturing industries expanded by 6.1% per year.[55] These growth rates were 3 to 4 times greater than the 2.1% annual average growth in total wage and salary employment.

The data appearing in the far right column can be used to provide information on the relative contribution of each of the rapidly expanding industries to overall net employment growth in the state. Analysis of these data reveals that firms in the retail trade industries accounted for slightly more than one-fifth of all net job growth in the state between 1977 and 1983. Business and Health Service industries combined accounted for an additional 26% of net employment growth in the state. Thus, three of the state's two-digit, SIC industry groups accounted for nearly one-half of total net employment growth occurring throughout the time period.

Analysis of the Occupational Implications of Industry Employment Growth

Once the major sources of industry employment growth have been identified, the next task facing human resource program planners is that of estimating the occupational employment impacts of such industry employment growth. The structural shift toward the trade and services sectors will alter the occupational structure of employment in the state and likely lead to changes in the educational and skill requirement of jobs in the economy. These changes will be generated as a result of differences in occupational staffing patterns between high and low growth industries.

Table 5-17

Employment Trends of Selected High Growth Industries
State A
1977 - 1983

	Total Number Employed in:		Change From 1977 to 1983		
Industry	1977	1983	Absolute Change	Percent Change (%)	Share of Total Absolute Change (%)
Total Nonag Employment	1,245,755	1,409,723	163,968	13.2	100.0
Subtotal of Selected High Growth Industries	546,523	673,695	126,043	23.0	76.6
Electrical Machinery	42,930	50,928	7,998	18.5	4.9
Instruments	22,420	27,928	5,139	22.9	3.1
Chemicals	15,412	22,056	6,644	43.1	4.0
Wholesale Trade	63,017	73,931	10,914	17.3	6.6
Retail Trade	205,073	239,976	34,603	16.9	21.1
Banking	22,987	27,221	5,134	23.2	3.1
Insurance	44,714	57,246	12,532	28.0	7.6
Business Services	41,046	64,266	22,860	55.2	13.9
Health Services	89,924	110,143	20,219	22.5	12.3

SOURCE: CES Program

The potential occupational employment impacts of observed industry employment growth patterns can be assessed through an analysis of industry staffing pattern data produced by the Occupational Employment Statistics (OES) survey program in this state. Findings on statewide occupational staffing patterns of individual two-digit SIC industries or groups of such industries are provided in Table 5-18.[56]

An analysis of the occupational structure of employment in expanding industries at a minimum should be produced at the two-digit SIC industry level of detail. However, when staffing pattern data are available at the three-digit SIC level of detail, a more detailed analysis should be done. Even a cursory review of these data will reveal that the occupational structure of these individual industries vary quite widely. For example, the health services industry in Table 5-18 uses relatively large numbers of professional and technical staff in the delivery of health services. Nearly 46% of all wage and salary workers employed in health services are professional and technical workers.

In contrast, firms in the retail trade industries shown on Table 5-18 use relatively small shares of professional/technical workers in operating their establishments. Only 3.4% of all persons employed in retail trade are professional/technical workers. Given the staffing patterns of the health industries, we would expect that the observed rapid job growth experienced by this industry would result in a sharp expansion in the employment of selected subgroups of professional and technical workers. Similarly, service workers accounted for nearly one-third of total employment in the health service industry; thus, it is likely that the demand for dietary aides, food service workers, and nurse aides/orderlies also expanded at a rapid rate.

The occupational impacts of employment expansion in the retail trade sector will be largely concentrated on the middle and lower end of the skill spectrum. Job growth in trade industries should have primarily increased the demand for sales, clerical, and service workers. Nearly 2 of every 3 workers in retail trade are employed in these three occupational groups. Relatively few additional employment opportunities for high level professional, technical, and craft workers will be generated as a result of the trade industry's employment expansion.

More specific numerical estimates of the impacts of industry employment growth on occupational employment requirements can also be produced. These estimates can be derived by combining the occupational staffing pattern data with the data on recent trends in industry employment growth. For example, the analysis of industry employment trends in Table 5-17 indicates that the health services sector grew at a rapid pace and generated a substantial number of net new jobs. By applying the specific occupational employment coefficients from the OES survey to the industry employment data, specific estimates of occupational employment growth for selected occupations in this sector can be produced.

Table 5-19 provides specific numerical estimates of employment growth by occupation within the health services industry, which has an estimated employment increase of 20,219 from 1977 to 1983. The analysis of employment trends in the industry and occupational employment data in this table indicates that somewhat more than 9,200 new health service professional jobs were generated over the 1977-83 period. Over 3,600 of the estimated growth in professional jobs were generated for workers in professional nursing occupations alone.

Table 5-18
Occupational Staffing Patterns for Selected Industries
State A

Occupational Group	Industry Health Services	Electrical Machine & Equipment	Business Services	Retail Trade	Chemical
Professional, Technical Kindred Workers	45.6	24.0	19.1	3.4	16.7
Nurses	18.0				
Lab Technicians	3.4				
Chemists					4.0
Engineering and Service Technicians				4.9	
Electrical Engineers		7.6			
Electrical/Electronic Technicians		4.6			
Managers	3.3	6.6	8.4	8.6	8.0
Sales Workers			3.1	20.6	4.2
Clerical Workers	15.9	13.9	31.2	22.2	14.2
Secretaries	3.2	2.4	5.4		2.9
Receptionists	3.1				
Typists			5.3		
Office Machine Operators			4.9		
Shipping and Receiving Clerks					2.1
Craft Workers		14.3	2.1	5.4	15.6
Mechanics					4.0
Metal Working Crafts		2.6			
Operatives		35.3	11.6	8.1	36.5
Transport Operatives				3.7	
Packers, Wrappers					6.3
Assemblers			23.6		
Semi-skilled Metal Workers		5.4			
Service Workers	31.2		25.0	22.1	2.5
Janitors	4.6		12.3		
Guards			11.3		
Food Service Workers	7.6				
Nurse aides					
Orderlies	14.6				
Laborers		3.2	4.1	5.8	6.6

Source: OES Program

Table 5-19

Employment Growth by Selected Occupation within the Health Services Industry
State A

1977-83

Occupation	Estimated Occupational Employment Change (1977-1983)
Professional, Technical, and Kindred	9,220
Nurses	3,639
Lab Technicians	687
LPN	1,273
Managers	667
Clerical Workers	3,215
Service Workers	6,309

Source: OES Program

The findings of this analysis can be used to develop initial lists of occupations for which classroom training and on-the-job training may be provided. Final selection should take into consideration additional information on formal educational and training requirements for these jobs, licensing requirements, starting wage rates, expected annual incomes, and occupational supply.

Industry Employment Projection Analysis

In addition to examining current trends in employment by industry, human resource planners should review and assess available projections of industry employment at the two- and three-digit SIC industry level. The need for these longer term industry and occupational employment projections is particularly acute among planners in education and training institutions offering training programs lasting 2 to 4 years.

The projection data available from most State Employment Security Agencies represent estimates of the likely growth path of the state economy between the base and target years of the projection. Interpretation of projections data should be made with a certain degree of caution, instead of regarding them as precise point estimates. Instead, projections of industry and occupational employment should be considered as measures useful in indicating likely directions and relative magnitudes of change.

For example, data appearing in Table 5-20 provide estimates of the projected levels of employment by industry within State A during 1990 and trends between the 1984-1990 period. These data can provide insights into the likely composition of industrial employment in this state's economy in 1990. An examination of these data indicate that total state employment will expand by approximately 2% per year between 1984 and 1990. Not all industrial sectors will grow at an equal pace in the state. Relatively rapid employment expansion is projected for three major industrial sectors:

Table 5-20

Industry Employment Projections
State A

1984-1990

Industry Sector	1984	1990	Employment Absolute Change	Relative Change
Total All Industries	1,578,134	1,780,920	202,786	12.8
Total Above Growth Industries	473,781	577,956	104,175	22.0
Share of All Industries	(30.0	(32.4)	51.4)	XX
Total Other Industries	1,104,353	1,202,964	98,611	8.1
Construction	54,372	57,484	3,212	5.9
Manufacturing	422,670	471,056	48,386	11.4
Durable	361,698	356,790	40,091	12.6
Electrical Machinery*	53,480	63,395	9,915	18.5
Non Durable	106,065	114,267	8,202	7.7
Instruments	29,182	34,648	5,466	18.7
Chemicals*	23,326	27,017	3,691	15.8
Transporation Communications, Utilities	62,784	68,483	5,699	9.1
Wholesale Trade	78,064	95,309	17,245	22.1
Retail Trade	244,545	286,813	42,265	17.3
Eating and Drinking Places	78,254	100,948	22,694	29.0
Finance/Insurance/Real Estate	119,116	143,620	24,504	20.6
Banking*	41,647	51,437	9,790	23.5
Insurance*	66,767	78,969	12,202	18.3
Services	417,050	472,412	55,362	13.3
Business Services*	65,720	78,908	13,188	20.1
Health Services	115,405	142,634	27,229	23.6
Government	89,173	93,012	3,337	4.3

*Indicates high growth industries

SOURCE: State and Area Projections Program finance/insurance/real estate, retail trade, and wholesale trade. The finance/insurance/real estate sector is projected to grow by nearly 21% between 1984 and 1990, a growth rate that is 60% greater than that forecasted for total employment during the same time period. Similarly, the state's wholesale and retail trade sectors are projected to grow at rates well above the average for total statewide employment while the durable goods manufacturing and service sectors are projected to grow at about the same pace as the overall economy. Analysis of the data also suggest that employment in the nondurable goods manufacturing industries and in government will continue to grow, but at below average rates, leading to further declines in their relative shares of employment opportunities in this state.

For human resource planning purposes, further analysis of the employment projections data at the two-digit SIC industry level should be undertaken. Table 5-20 also includes data for eight specific two-digit SIC industries that are projected to account for over one-half of total net job growth in this state. Their combined employment is projected to expand by 22% over the six year period. In sharp contrast, the rest of the state economy, consisting of about 80 two-digit SIC industries, is expected to account for less than one-half of all net new jobs generated over this six year period. This subset of industries in the aggregate will continue to expand, but at a rate of growth only 40% as high as that of the high growth sectors. While employment projections for two-digit SIC industries may not be able to provide us with totally precise information on the size of employment growth that will actually occur in each industry, these data are extraordinarily useful in helping planners to identify the specific industries in which the bulk of net new employment growth is likely to occur.

The findings of these long-term industry employment projections should be analyzed within the context of the previous analysis of recent industry employment developments. Such a comparison would show a fairly consistent pattern between recent developments and the long-term outlook by industry. The economy of this state is continuing to shift away from goods producing industries, especially non-durable goods, towards trade, finance, and service producing industries. Those two-digit SIC industries that have performed well in the recent past as measured by employment growth are expected to expand most rapidly in the future. The occupational and educational impacts of this employment expansion will be somewhat mixed. As the previous review of the occupational staffing patterns data in Table 5-18 indicated, projected employment expansion in the eight rapid growth industries will have occupational impacts that are somewhat unique to each of these industries. Health sector employment growth will significantly expand the demand for certain types of workers with post-secondary education (professional nurses, health technicians, LPNs). However, expansion of employment in eating and drinking establishments will result in little increased need for workers in professional and technical occupations. To determine the overall occupational employment impacts of the projected changes in industry employment, it is necessary to combine the industry employment projections data with the industry/occupation matrix for this state.

Occupational Supply/Demand Analysis

Supply/demand analysis has widespread applications. Knowledge of future labor market conditions enables vocational education planners and administrators to identify programs that have the potential for high training related placement rates. Employment and training planners can also determine the occupations most suitable for their target populations. State and local economic development specialists can use the data to respond to company respresentatives who are contemplating relocations in local areas. Supply/demand analysis is particularly important to counselors, career decision makers, and job seekers who should be aware of the likelihood of their obtaining employment in an occupation, prior to investing substantial time and money in training, educational preparation, or job search activities.

Analysis of the results of occupational supply/demand matching should focus on the reasons for the imbalance, whether potential surplus, or shortage. For example, does a shortage exist because earnings and working conditions are unattractive? Are training programs available or planned in occupational fields for which there appears to be an increasing demand? Are completers of occupationally specific training programs obtaining jobs in occupations related to their training? A complete analysis of occupational supply and demand in a labor market should consider qualitative aspects of occupations in addition to the quantitative indicators. Such analyses can provide valuable information to planners, counselors, and career decision makers for understanding the underlying reasons for occupational supply/demand imbalances.

There are four major types of planning situations in which occupational information can be helpful:

- In monitoring and reviewing the performance of existing programs. It is possible to identify programs that are not meeting established standards for placement or that show declining enrollments, completion levels or placement rates. The information in an OIS might indicate factors affecting the performance of these programs or assist in identifying problem areas that require further investigation.

- In planning and proposing new program offerings for the coming year. A planner might want to identify areas of employment needs that are not being met adequately by existing programs. Such areas would be identified though an OIS.

- If an occupational program is to be designed for particular target populations, it is important to select occupations with a positive employment outlook and characteristics and requirements that match the characteristics and qualifications of the group to be served. An OIS can provide the information necessary to ascertain and match these characteristics.

- Ideas for new or modified program offerings. These may arise from personal contracts, current news, community groups, or economic events within a school district. An OIS can be used to evaluate these ideas on a sound, objective basis. It can be used to investigate the employment prospects and characteristics of occupations for which training is proposed and to verify whether there is a need for the training.

An OIS provides an information to assist planners in making more informed decisions by providing in a systematic, organized fashion a number of factors that planners can weigh in their decision-making process. The role of an OIS can probably be best viewed as a tool to help planners narrow their focus from a large universe of occupations and programs to those areas that offer the greatest potential and current problematic areas that may need adjustment. Through an OIS, planners from different programs, i.e., vocational education and JTPA, can have access to a common data base and sets of analyses that should facilitate coordinated planning to maximize the impact of limited resources in addressing the needs of the local population.

Measuring the Outcomes of Human Resource Programs

Evaluations of many human resource programs at the state and local levels involve the direct collection of information on the employment and earnings experiences of former program participants at both time of termination and at varous time intervals in the post-program period, e.g., three months, six months, one year after termination. Some of these evaluation activities are dependent upon particular types of labor market and occupational information and, simultaneously, can generate information relevant for constructing and using occupational information systems.

One objective of local program evaluation activities is to determine the number of terminees obtaining employment and the number of training-related placements. Proper measurement of the number of training-related placements requires information on the range of occupations that can be considered "related" to the training provided. The National Occupational Information Coordinating Committee has developed an occupational code crosswalk which provides detailed information on relationships between training programs (classified by CIP codes) and occupations appearing in various classification systems, including the DOT, SOC, and OES occupational classification systems.[57] Consistent use of the above occupational cross-classification systems by human resource agencies in classifying placements by their training-related status would result in a uniform reporting of program outcome data critical to the construction of occupational information systems at the state and local levels. Data on the numbers of training program terminees obtaining employment in related-occupations are indispensable for occupational supply/demand systems. Knowledge of the access of training program graduates to specific types of jobs in local industries and occupations is also desirable for career guidance and counseling activities.

To illustrate the potential interrelationships between local program evaluation activities and labor market and occupational information systems, Tables 5-21 and 5-22 report findings on the labor force, employment, wage, and earnings experiences of program terminees. These individuals were enrolled in an electrical/electronic technicians training program administered by a post-secondary trade school for Local Area A, a JTPA service delivery area. This hypothetical program enrolled 25 participants and was specifically designed to prepare them for employment as electrical/electronic technicians. A set of competency standards was developed for the program to assess the actual skills and knowledge obtained by participants and to determine their job readiness. Successful program completion was determined by achievement of these minimum competency standards. Summary information on the completion, placement, and wage status of the 25 enrollees at the time of termination from the program is presented in Table 5-21.

Twenty-two of the 25 enrollees successfully completed the program, yielding a completion rate of 88.0%. At the time of termination, 21 of the 25 participants, or 84.0%, were employed. Of the four terminees not employed, 2 were unemployed, actively searching for employment in a related occupation, 1 had withdrawn from the labor force to assume child care responsibilities in the home, and 1 had moved from the local area and his whereabouts were unknown.

While the overall job placement rate (84.0%) is quite favorable, information on the types of jobs obtained by former participants is needed to determine the degree of success of the program in securing jobs for participants that were directly related to the training they received. Proper determination by program evaluators of the number of training-related jobs is dependent upon criteria as to what constitutes a training-related position. These criteria should not be arbitrary nor determined independently by each local evaluator on the basis of subjective criteria.[58] Consistent application of uniform criteria for determining the training-related nature of jobs obtained by program terminees is highly desirable for the previously mentioned reasons.

Available information in occupational cross-classification systems indicates that the only SOC occupation related to the technicians training program is SOC 3711, electrical and electronic technicians. As noted earlier, there exists a set of DOT and OES occupations that are related to this SOC occupation. Only those occupations directly related to SOC 3711 can be considered as training-related. Electronic assembly

Table 5-21
Employment Status of Participants in the Electrical/Electronic Technical Program at Time of Termination

Local Area A

Title of Program: Electrical and Electronic Technician

Related SOC Occupations: 3711 Electrical and Electronic Engineering Technicians

	Number	Percent (%)
Total Terminees	25	100.0
Completion Status		
Completed Program	22	88.0
Did not complete program	3	12.0
Placement Status at time of Termination		
Employed	21	84.0
Not Employed	4	16.0
Awaiting Placement	2	
At home taking care of children	1	
Moved from area, location unknown	1	
Training-Related Status of Placement		
Training-related	19	90.5
Not training-related	2	9.5
Recalled to former job as construction laborer	1	
Working as electronic assembler	1	
Wage Status at Placement		
$4.01 - 5.00	1	
$5.01 - 6.00	2	
$6.01 - 7.00	10	
$7.01 - 8.00	6	
$8.01 - or more	1	
Mean hourly wage	$7.25	
Median hourly wage	$7.00	
Differences Between Hourly Wage On Current Job and Wage Last Pre-Program Job		
$ .00 - or less	2	
$ .01 - .50	4	
$ .51 - 1.00	4	
$1.01 - 1.50	6	
$1.51 - 2.00	2	
$2.01 - 2.50	1	
Mean hourly wage change	$ .87	
Median hourly wage change	$1.10	

SOURCE: JTPA MIS Data

jobs or packaging jobs in electronic components firms would not be regarded as training-related positions even though they are located in industries that are dominant employers of electrical/electronic technicians. Given the above criteria for defining a training-related position, a review of the 21 jobs obtained by former participants reveals that 19, or 90.5%, are training-related. The other two terminees were employed as a construction laborer and an electronics assembler.

An examination of the data on the initial hourly wages received by employed former participants reveals that the vast majority of the jobs (86%) paid hourly wages in the $6.00-8.00 range. The mean and median beginning hourly wages were $7.25 and $7.00, respectively.[59] A number of human resource programs, such as JTPA Title II programs for adults and post-secondary vocational education programs, are expected to improve the hourly wages of participants. According to economic theory, if training programs increase the innate productivity of trainees, such productivity improvements should lead to higher hourly wages.[60] Improvements in the productivity of the labor force were cited by the Congress as a major objective of programs funded under the Carl D. Perkins Vocational Education Act. The distribution of hourly wage gains of employed participants as measured by differences between the beginning hourly wages of their first post-program job and hourly wages on their most recent pre-program jobs appears at the bottom of Table 5-21. An examination of those data reveals that more than two-thirds of employed participants achieved hourly wage gains of more than $ .50 per hour, and nearly half improved their hourly wages by $1.00 or more. The mean and median hourly wage gains were $ .87 and $1.10, respectively.

Follow-up of Former Program Participants

In addition to documenting the employment and wage status of former participants at the time of their termination from the human resource delivery system, local evaluation systems also frequently track the labor force behavior and the employment and earnings experiences of former participants over some given post-program period. A variety of follow-up studies involving interviews with former participants can be designed to trace these post-program experiences.[61] Findings of such studies can be used to produce estimates of the job retention of former participants, their ability to obtain and maintain training related jobs, the number of weeks of employment obtained since terminating from the program, average hourly and weekly wages, and total earnings during the post-program period. A number of such post-program labor market outcome measures are displayed in Table 5-22. It should be noted that all of these outcomes simply measure the actual status or experiences of former participants. They do not represent the net impacts of program participation. As noted in the discussions in Chapter 4, estimates of net impacts require the use of comparison or control groups.

Hourly wage data were available for 18 of 19 respondents who were employed at the time of the six month follow-up survey. The hourly wages being earned by these employed respondents ranged from under $5.00 to more than $8.00 per hour. The mean and median wages were $7.60 and $7.20, respectively. Former participants employed in training-related positions earned mean hourly wages well in excess of those received by respondents employed in non-related jobs: $7.85 versus $5.60. Such a finding is consistent with results of recent national evaluations of vocational education programs, suggesting that the economic returns to vocational training are higher when participants obtain employment related to their field of training.[62]

The follow-up interviews with respondents yielded information on job changes that they had made since their initial placement. Fifteen of the 19 employed respondents were still working for their initial employer, 2 had changed employers but remained in the same industry (two-digit SIC level of detail) and 2 had shifted to new employers in different industries. Retention with the initial employer, though often viewed as a

Table 5-22
Employment Status for Former Participants in the Electrical/Electronic Technician Program
Six Months after Termination

Local Area A

Title of Program: Electrical and Electronic Technician

	Number or Mean Value	Percent of Total (%)
Contact Status		
Interview completed	21	84.0
Not completed	4	16.0
Employment Status at Contact		
Employed, training-related	17	81.0
Employed, not-related	2	9.5
Unemployed	1	4.8
Out of labor force	1	4.8
Hourly Wage at Followup		
Total responses	18	
$4.01 - 5.00	2	11.1
$5.01 - 6.00	2	11.1
$6.01 - 7.00	6	33.3
$7.01 - 8.00	6	33.3
$8.01 - or more	2	11.1
Mean wage	$ 7.60	
Training-related	$ 7.85	
Not related	$ 5.60	
Median wage	$ 7.30	
Employer at Followup Contact		
Same employer as at initial placement	14	77.8
Different employer, same industry	2	11.1
Different employer, different industry	2	11.1

SOURCE: JTPA MIS Data

desirable outcome by many human resource program administrators, is not always desirable from a participant's earnings perspective and may, in fact, reduce the returns from training.[63] Industrial, geographic, and occupational mobility are avenues for raising long-term earnings and, hence, the economic returns from training.

Earnings of Program Participants

Human resource investments of the type represented by our electrical/electronic technicians training program are expected to raise the earnings of participants over their working lives. In passing the Job Training Partnership Act of 1982, the Congress explicitly recognized training as an investment in the human capital of program participants and indicated its desire that such training be evaluated in part on its ability to raise the earnings of participants.[64] Earnings data can be obtained through personal interviews with participants or, in most states, through the use of wage record reports provided by employers covered by the unemployment insurance laws and can be used to track earnings experiences of graduates from a number of human resource programs at the state and local level.

An illustration of the potential uses of such administrative records in tracking the employment and earnings experiences of former participants in early adult training is presented in Table 5-23 below. Use of this approach, particularly the pre/post comparisons, is not appropriate for most youth employment and training programs, since the pre-program earnings data primarily represent earnings during school and will not be reflective of expected earnings during the adult years.

Table 5-23

Mean Quarters of Employment and Quarterly Earnings in the Two Pre-Program and First Post-Program Years (All Participants)

	Second Pre-Program Year	First Pre-Program Year	First Post Program Year
Mean Number of Quarters during which Employed	3.0	2.3	3.4
Mean Earnings per Quarter (including zero earnings)	$1700	$1390	$2325

Source: Hypothetical data provided by authors--representative of data reported in UI Quarterly Wage and Tax Data.

Table 5-23 presents data on both the employment and earnings experiences of former participants in the two years prior to training and the first year after training. The data on employment pertain to the mean number of calendar quarters during which participants were employed. Any respondent with a wage entry during a calendar quarter is regarded as having been employed during that quarter. In most states the earnings records do not allow the identification of the exact number of weeks or hours of employment obtained during any given quarter of the year. Findings on both the employment and earnings of participants in the two years immediately prior to enrollment reveal that employment and earnings were lower in the year prior to enrollment than they were in the second pre-program year. Evidence of such dips in the earnings of adult participants immediately prior to their enrollment in training programs has been found in previous evaluations of programs targeted on the unemployed and the economically disadvantaged, including MDTA and CETA programs.[65]

A comparison of the employment and earnings experiences of former participants in the first post-program year with those in the two pre-program years reveals improvements in both employment and earnings. Mean quarters of employment in the first post-program year were 3.4. This mean was 1.1 and .4 quarters above that experienced during the first and second pre-program years, respectively. Mean quarterly earnings during the first post-program year were $2,325, equivalent to a mean annual earnings of $9,300. This mean annual earnings level was $2,500 or 37% above that prevailing in the second pre-program year, a base of comparison better than that of the first pre-program year, due to the "temporary" dip in earnings experienced by some participants. These findings suggest that participation in this electrical/electronic technician training program has been effective in raising the employability and earnings of the typical enrollee. All of these earnings improvements can not be attributed to the program since it is not known how well participants would have fared in the labor market in the absence of the program. Available information on the earnings of comparison or control groups would have been needed to estimate these net earnings impacts.[66] The actual post-program earnings data of these participants are also useful for purposes other than evaluation, such as career guidance and counseling activities.

Summary and Conclusions

This final chapter has provided a fairly detailed review of alternative uses of labor market and occupational information in the planning, design, operation, and evaluation of human resource programs at the state and local level. A diverse array of existing labor market and occupational information data bases can be applied to key human resource policymaking local and planning tasks. These include such tasks as analyzing local human resource problems, identifying target groups for the delivery of services, designing appropriate strategies for meeting the employment and training needs of these target groups, selecting industries and occupations for on-the-job training, developing jobs in the private sector for graduates of training programs, and tracking the post-program employment and earnings experiences of former participants in human resource programs.

As noted in the introductory chapter of this book, labor market information should be viewed as a tool for use by policymakers and planners in making more informed judgements with respect to the allocation of scarce budgetary resources for human resource programs at the state and local level. If properly used, labor market information can contribute in a substantive way to the planning of human resource programs. Past experience indicates that more effective planning and administration of such programs should improve their ability to achieve a number of key economic and social goals for the nation. Such goals include continued real economic growth, a decrease in the number of structurally unemployed individuals, further declines in the number of poor families, and a reduction in income and employment disparities between major racial groups in American society.

Appendices

Appendix A: Case Study
Appendix B: Footnotes

APPENDIX A

Case Study

Forward to the Case Study

The chapters in the text have been designed to acquaint the reader with key concepts in labor market information, the major elements of labor market and occupational information systems, the nature and structure of human resource planning models and program activities, and practical uses of labor market and occupational information in the planning and design of human resource programs. The specific nature of the planning activities for human resource programs will tend to differ somewhat from one agency to another, given differences in target groups being served, the nature of the services provided, and the objectives of the programs. Given this diversity, it is desirable to develop a set of Case Study materials that would provide the reader or a group of participants receiving LMI training an opportunity to apply their knowledge of labor market and occupational information to a simulated real world planning study. The case study materials were developed to simulate a planning exercise for a county that operates Job Training Partnership Act Programs under Title II and III of the Act.

All of the labor market and occupational information appearing in the tables within the case study is hypothetical; however, the data bases needed to generate such tables are generally available in all state and major local areas throughout the nation and were reviewed in the text itself. Instructors responsible for providing LMI training may well choose to substitute actual state and local area data for the hypothetical data appearing in these tables. Data products of State Employment Security Agencies, State Occupational Information Coordinating Committees, and the U.S. Census Bureau are needed to generate such tables. Key employment service and SOICC staff should be asked to participate in such training sessions given the critical role played by their agency's data bases in providing the information needed for planning human resource programs. While the case study is geared to a JTPA planning exercise, many of the techniques and information sources are equally useful in planning job service, vocational education, vocational rehabilitation, community college, and WIN programs throughout the nation.

SECTION 1

CASE STUDY BACKGROUND

Introduction

The curriculum materials developed for this course on Human Resource Planning and Labor Market Information have covered a wide-ranging number of topics. Discussions in the text emphasized the importance of viewing labor market and occupational information as key inputs into the decision making process of policymakers, administrators, planners, and line staff associated with human resource programs. The effective use of such information is dependent upon knowledge of key labor market and occupational information concepts and measures, available data sources, and appropriate methods for applying such data to the analysis of critical policymaking and program planning issues.

This human resource planning case study has been developed to provide course participants an opportunity to systematically apply their knowledge of labor market and occupational information to the formulation of policies and program plans for a local human resource agency responsible for administering Job Training Partnership Act programs. Participants are to assume the roles of planning director and staff for this agency. The human resource agency is a unit of county government in Lemi County. A description of the current economic and political environment in Lemi County is presented below, together with a discussion of the current employment and training issues being addressed by County Commissioners and the Private Industry Council of Lemi County.

The Economic Setting

Lemi County forms a geographically compact local labor market area. There were 460,000 persons in the labor force of Lemi County during 1980, and the civilian labor force is estimated to have grown by 4% over the past four years. Forty percent of the civilian labor force participants resided in the central city of this county (Capital City) during 1980; however, labor force growth in recent years has been more rapid in the suburban portions of the county. The vast majority of black and Hispanic labor force participants reside in Capital City.

The unemployment situation in Lemi County has improved remarkably during the past two years. The local economy weathered the past national recession fairly well, with only minor job losses occurring between 1981 and 1982. During 1982, the local unemployment rate rose to 8.6%, but now has fallen to 6.5%. Declines in overall unemployment have been greater in the suburban portions of the labor area, with the unemployment rate falling to 5.0% by year's end in these communities.

The sharp drop in overall unemployment in Lemi County has made possible a rapid expansion of wage and salary employment during the past few years. Between 1982 and 1984, the total number of wage and salary jobs in the local economy increased by 12,700 or 3.2%. Employment in the construction, high technology-oriented manufacturing, retail trade, and selected private services sectors has expanded most rapidly. While employment growth has occurred in all areas of the county, firms located in the outlying suburbs have expanded their payrolls to a greater degree, particularly manufacturing firms in the high technology sector and retail trade establishments. Stories focused on "labor shortages" in such firms have been appearing more frequently in the local media, and a number of the business representatives on the Private Industry Council have noted that relatively high numbers of job openings have remained unfilled in several key engineering, technical, and computer-related occupations.

The projected employment outlook for the local economy for the remainder of the decade is quite favorable. Above average growth rates are projected for many professional, technical, and clerical occupations and selected craft occupations closely related to the construction industry. The continued shift to a services-oriented economy and the demise of the nondurable manufacturing sector is expected to alter the occupational composition of employment in favor of white-collar occupations and skilled blue-collar occupations and to increase the demand for high school and college graduates with solid basic academic skills. Recent employment declines in several manufacturing industries located in Capital City have led to the displacement of a number of poorly educated, older workers who have experienced difficulties in being absorbed by growing firms in the County.

While overall employment opportunities have increased markedly in recent years, serious pockets of poverty continue to persist in Capital City and several nearby communities. The county's largest daily newspaper has just published a series of articles on the "poverty in the midst of prosperity," claiming that the poor do not appear to have been much affected by the current economic boom. Black and Hispanic community leaders have called for an all-out effort by government and business to combat joblessness and poverty among minorities and have requested expanded education and training services for inner-city residents.

The Political Environment

County government is an effective force in this state, with a seven member Board of County Commissioners setting basic policy directions. Results of a recent election have altered the composition of the board, with five new County Commissioners taking office. Three of these five new commissioners are residents of Capital City, and each of their campaigns emphasized the need for continued revitalization of the central city's economy and expanded job opportunities for city residents.

Upon assuming office, several of the county commissioners have taken an active interest in education and training policies and programs and have maintained close contact with the County staff responsible for administering the Job Training Partnership Act. These Commissioners have supported expanded program efforts to serve jobless youths and to train the unemployed and the economically disadvantaged for employment in occupations with most favorable growth prospects. The Mayor of Capital City is a member of the Private Industry Council responsible for planning and designing all JTPA programs in the county. He has forcefully argued for an increased share of available JTPA monies to be allocated to serve the needs of Capital City residents who are in "greater need" of assistance.

The Employment and Training System of Lemi County

The employment and training system that existed under CETA in this county is currently undergoing a substantial transformation. During the last two years of CETA operations, several efforts were made to expand vocational training activities; however, the performance of these programs was quite mixed. A major share of CETA funds were still being spent on work experience activities for in-school youth and young adults. Only a small fraction (less than 5%) of CETA participants received basic skills remediation or GED training, despite the fact that many CETA eligibles were believed to have dropped out of high school.

The membership of the Private Industry Council under JTPA has been reconstituted, with a major expansion of private sector business representation. The Council has been debating a number of substantive policy issues, ranging from the selection of target groups to the design of effective program strategies. During these deliberations, the Council has reached a consensus on general target groups to serve with available JTPA monies. The two major target groups are economically disadvantaged youth 16-21 years of age who are not enrolled in college or other post-secondary education and training institutions and the heads of economically disadvantaged families. Council members feel that they have only limited information on the composition of the above two groups and have asked for a briefing paper presenting more detailed information on the numbers and characteristics of the individuals comprising these two groups. In addition, they have indicated a willingness to consider other target groups if available information can justify the delivery of services to them.

The Private Industry Council also has reached a consensus on the need to expand education and training services to the JTPA eligible population in Lemi County. Several principles were adopted to guide the planning of such programs. First, the training provided to participants should prepare them for employment in occupations that are currently growing and are projected to experience favorable growth throughout the remainder of the decade in Lemi County. Second, training programs for economically disadvantaged family heads should provide them access to jobs whose wages would enable them to earn an income sufficiently high to remove them from the ranks of the economically disadvantaged. Third, training services should be provided to the maximum extent possible by existing education and training institutions in the county. Duplication of services is to be minimized, particularly given limited resources for serving the needs of the economically disadvantaged population. Fourth, in the interest of economy training courses should be as short as possible to provide necessary job skills and in no case more than 2 years in length.

While agreement on general principles for planning and designing training programs was achieved, the PIC membership recognized the need for improved information on current and projected employment developments by industry and occupation to assist them in selecting specific occupations for which JTPA training will be considered. An assessment of the job placement performance of recent training programs administered under CETA and JTPA has also been requested to determine the appropriateness of refunding such activities.

The state Office of Job Training Partnerships responsible for developing and implementing state JTPA policy has submitted a policy paper to all service delivery areas that outlines desired education and training strategies to be funded with the Governor's 8% Education and Coordination Grant monies. The Governor has recently adopted the following theme for her administration: "Economic Development through Education and Training." In support of this general policy thrust, the state's 8% education and coordination monies are to be used to support job training programs directly linked to high growth industries in the state. The Governor's office has also requested service delivery areas to submit proposals that outline how the proposed training efforts will facilitate the movement of women into non-traditional occupations in the local labor market.

Finally, the Governor's JTPA incentive grant monies will be used during the next year to support local efforts to bolster the basic academic and functional competencies of out-of-school disadvantaged adults and youths. Remediation efforts are believed to be critical to the success of training efforts aimed at improving the long-term employability and earned incomes of the state's disadvantaged population. Proposals illustrating close ties between planned remediation and job training efforts will be given highest priority by the state review committee.

Assignment for the Planning Team

As director of the county's JTPA planning department, you have been assigned the task of responding to the information requests of the County Commissioners and the Private Industry Council. After reviewing the nature of their various requests, you have developed a list of tasks that need to be conducted by your planning department. For this case study, nine tasks have been identified. These tasks have been grouped into four exercises. The tasks and exercises listed below, are presented in more detail in Section 2 of this appendix:

Exercise 1	Labor Force Analysis
Task i	Analysis of Recent Labor Force Trends
Task ii	Analysis of Labor Force Composition and Unemployment
Task iii	Analysis of Youth Labor Force Behavior
Exercise 2	Identification of the Economically Disadvantaged and Key Target Groups to be Served
Task iv	Overall Analysis of Economically Disadvantaged
Task v	Identification of Key Target Groups
Exercise 3	Industry Employment Trends Analysis
Task vi	Industry Analysis
Exercise 4	Targeting Occupations for Training
Task vii	Analysis of Occupational Employment and Opportunities
Task viii	Analysis of Relevance of Occupations for JTPA Training
Task ix	Analysis of Available Occupational Supply

The exercises have been designed to be completed in small groups of 5-15 people. Individual members of the planning group can be assigned specific parts of the above planning tasks; however, the findings of each phase need to be discussed with the group as a whole to determine their implications for the planning and design of the local delivery system. Problems of unemployment and income inadequacy cannot be properly diagnosed in the absence of information on aggregate employment developments and the structure of available job opportunities by industry, occupation, and location. Similarly, the formulation of proper training strategies should take into consideration information on the characteristics of the individuals to be served as well as data on current and projected employment opportunities by industry and occupation. As we noted in our discussions in Chapters 1 and 4 in volume I, the various components of these strategic and tactical planning processes should be properly sequenced and coordinated. These activities should not be undertaken in isolation from each other.

To assist you in carrying out the activities described above, the Case Study materials are divided into four sections. Section 1 -- Case Study Background provides general background on the Case Study and helps set the stage for the analysis. Section 2 -- Case Study Exercises presents all 4 exercises, with response sheets. Section 3-- Case Study Tables for Lemi Country provides the comprehensive set of planning information tables in a data base for this simulation exercise which contains hypothetical state and local labor market and occupational information largely based on actually existing data. Section 4 --Case Study Analysis offers a detailed analysis of each of the issue areas. Course participants are encouraged to read this fourth section to gain further insight into the analysis of such data, though they should do so only after they have completed the exercises.

SECTION 2
CASE STUDY EXERCISES

The case study contains 4 exercises covering four tasks. These tasks are briefly described on the following 2 pages. The balance of this section contains a description of each exercise, a "worksheet guide for data analysis" and worksheets as appropriate. The tables referenced in each task may be found in Section 3 of this document.

EXERCISE 1 -- LABOR FORCE ANALYSIS

Task i -- Analysis of Recent Labor Force Trends -- A description and analysis of recent trends in overall labor force developments in the county and the degree of progress achieved in solving unemployment problems of county residents. The nature and structure of unemployment problems in the county also need to be identified and interpreted in a manner that can be readily understood by local policymakers.

Task ii -- Analysis of Labor Force Composition and Unemployment -- A description of the labor force behavior of county residents, and an assessment of the extent to which "hidden unemployment" problems may exist among various subgroups of the local population, particularly in Capital City.

Task iii -- Analysis of Youth Labor Force Behavior -- An analysis of the labor force behavior and employment problems of the youth population (16-21 years old) in the county that is not currently enrolled in post-secondary education or training institutions. An assessment needs to be made of the nature and severity of the employment problems encountered by various youth subgroups in the county, and the implications of these findings for youth employment and training policies in the county need to be highlighted.

EXERCISE 2 -- IDENTIFICATION OF THE ECONOMICALLY DISADVANTAGED

Task iv -- Overall Analysis of the Economically Disadvantaged -- Identification of the number and demographic/socioeconomic characteristics of the economically disadvantaged population (age 16 and older) residing in the county. Given the Private Industry Council's emphasis on delivering employment and training services to economically disadvantaged family heads and youth, separate breakouts of the characteristics and employment problems of these two groups need to be made, and findings need to be analyzed and interpreted.

Task v -- Identification of Key Target Groups -- Given the above findings on unemployment and income inadequacy problems, identify key target groups for the delivery of JTPA services, including a brief discussion of the rationale for your target group selection.

EXERCISE 3 -- INDUSTRY EMPLOYMENT ANALYSIS

Task vi -- Industry Analysis -- Describe trends in the level of the employment by industry throughout the county during recent years and identify key growth and declining industries in the local economy.

EXERCISE 4 -- TARGETING OCCUPATIONS FOR TRAINING

Task vii -- Analysis of Occupational Employment and Opportunities -- Analyze projected job opportunities by occupation in the local labor market for the remainder of the decade. Given employment data for 20 occupations, identify which occupations have the best and worst employment prospects as measured by the numerical change in levels of employment over the decade (absolute growth) and by the percentage change in employment (relative growth).

Task viii -- Analysis of Relevance of Occupations for JTPA Training -- Identify the earnings expectations and required training time for occupations for which training is being contemplated. Analyze how these factors may help identity if an occupation is an appropriate target for JTPA training.

Task ix -- Analysis of Available Occupational Supply -- Analyze the supply of trained workers available for the occupations being considered by reviewing occupational supply/demand data and the job placement rates of related training programs. Identify those occupations which appear to be candidates for JTPA training based on the analysis of the available occupational supply.

EXERCISE 1
LABOR FORCE ANALYSIS

Tasks to be Completed

(i) Analysis of Recent Labor Force Trends

A description and analysis of recent trends in overall labor force developments in the county and the degree of progress achieved in solving unemployment problems of county residents. The nature and structure of unemployment problems in the county also need to be identified and interpreted in a manner that can be readily understood by local policymakers.

(ii) Analysis of Labor Force Composition and Unemployment

A description of the labor force behavior of county residents, and an assessment of the extent to which "hidden unemployment" problems may exist among various subgroups of the local population, particularly in Capital City.

(iii) Analysis of Youth Labor Force Behavior

An analysis of the labor force behavior and employment problems of the youth population (16-21 years old) in the county that is not currently enrolled in post-secondary education or training institutions. An assessment needs to be made of the nature and severity of the employment problems encountered by various youth subgroups in the county, and the implications of these findings for youth employment and training policies in the county need to be highlighted.

Relationship to Planning Process

- Analysis of Existing and Projected Environment
- Establishment of Goals and Objectives

Information Sources Used

- 1980 Census
- CPS
- LAUS

Related Text Chapters

Chapter 2: LMI Concepts and Measures
Sections: Labor Force Data
Labor Force Behavior
Labor Force Concepts
Labor Force Activity Measures
Chapter 3: Available Sources of Labor Market Information
Sections: Data Collection Programs
Labor Force Developments
Chapter 4: Planning and Implementing Human Resource Programs
Sections: LMI Applications Issues and Strategy
Labor Force Developments

Tables Used in This Exercise

Tables 1-5

Exercise 1
WORKSHEET GUIDE FOR DATA ANALYSIS

Task i: Analysis of Recent Labor Force Trends

A. Complete the following table for 1983 and 1984 using Table 1.

Unemployment Rate

	1980	1981	1982	1983	1984
Lemi County	7.5%	7.8%	8.6%		
United States	7.1%	7.6%	9.7%		

B. Complete the following statements by checking the appropriate space.

Comparison of Lemi County to the U.S., 1980-1984 (Questions 1-4)

1. The unemployment rate in Lemi County in 1980 was nearly ___ 1/4 ___ 1/2 ___ 1.0 percentage point higher than the U.S. rate in 1980, but was ___ percentage points lower in 1984.

2. The unemployment rate in Lemi County rose _________ percentage points between 1980 and 1982, the bottom of the recession. The magnitude of increase in the unemployment rate in Lemi County was less than ___ 1/2 ___ 1/3 of the increase for the U.S., which was ___________ for the same period.

Comparison of Capital City to Suburbs, 1980-1984 (Questions 5 and 6)

3. Relative to the U.S., did Capital City's unemployment situation improve between 1980 and 1984 according to Table 1? ___ Yes ___ No

4. Complete the following using Table 1 to analyze relative changes between Capital City and Suburbs. Between 1982 and 1984, the number of employed in Capital City rose by approximately ___ 6,000 ___ 8,000, an increase of slightly less than ___ 4% ___ 5%.

FOR DISCUSSION

- Based on all the above data, how would you characterize the Lemi County labor force activity from 1980 to 1984? Also look at Lemi County relative to the U.S.

- How did the national recession (1981-1982) impact on the Lemi County economy?

- What factors helped/hurt the Lemi County economy from 1980-1984 as compared with the performance of the U.S. economy during that time?

- How does the city and suburb labor force activity differ? What are the implications of these differences?

Task ii: Analysis of Labor Force Composition and Unemployment

A. Complete the following table using data from Table 2 and your own calculations.

	Lemi County		Capital City		Suburbs	
	Number	Percent*	Number	Percent*	Number	Percent*
White	394,800	86.1%	135,800	74.0%		
Black	53,800	11.7%	39,800	21.7%		
Hispanic	9,900	2.2%	7,900	4.3%		
Total	458,500	100.0%	183,500	100.0%		100.0%

*Percentages are vertical percentages, i.e., the race/ethnic percent distribution for each area. These are calculated values.

B. Complete the following statements by checking the appropriate space.

Labor Force Analysis (Questions 1-2)

1. The above table indicates that approximately ___ 40% ___ 60% of the total Civilian Labor Force (CLF) resided in the suburbs in 1980. The racial/ethnic composition of Capital City CLF varies substantially from that of the suburbs. Less than ___ 3% ___ 6% of the CLF in the suburbs is composed of racial minorities and Hispanics, while approximately ___ 26% ___ 40% of the CLF in Capital City is composed of this group. While the Capital City accounts for ___ 40% ___ 60% of the Lemi County CLF, approximately ___ 50% ___ 75% of black and Hispanic CLF participants reside there.

2. List additional data that might be useful to account for differences in CLF participation of the various groups, and briefly note why such information may be useful.

	Source	Use
1.		
2.		
3.		
4.		
5.		

FOR DISCUSSION

- How would you characterize the composition of the labor forces of Lemi County, Capital City and the Suburbs? Who is the most likely to participate in each? Why, what are the likely factors responsible for the observed differences in participation rates?

- What are the unemployment differences between the various subgroups? Where in Lemi County were the differences most severe? What factors influence these differences?

- What are some particular labor force problems encountered by key subgroups of the resident population? What are a few of the implications for the targeting of services?

Task iii: Analysis of Youth Labor Force Behavior

FOR DISCUSSION:

- How would you characterize the labor force behavior of youth subgroups in Capital City and the Suburbs?

- What problems do youth encounter in participating in the labor force?

- What factors contribute to these problems?

EXERCISE 2
IDENTIFICATION OF THE ECONOMICALLY DISADVANTAGED AND KEY TARGET GROUPS TO BE SERVED

Tasks to be completed:

(iv) **Overall Analysis of the Economically Disadvantaged**

Identification of the number and demographic/socio-economic characteristics of the economically disadvantaged population (age 16 and older) residing in the county. Given the Private Industry Council's emphasis on delivering employment and training services to economically disadvantaged youth and family heads, separate breakouts of the characteristics and employment problems of these two groups need to be made, and findings need to be analyzed and interpreted.

(v) **Identify Key Target Groups**

Given the above findings on unemployment and income inadequacy problems, identify key target groups for the delivery of JTPA services, including a brief discussion of the rationale for your target group selection.

Relationship to Planning Process

- Analysis of Existing and Projected Environment
- Establishment of Goals and Objectives

Information Sources Used

- 1980 Census

Related Text Chapters

Chapter 2: LMI Concepts and Measures

Sections: Poverty Concepts and Measures
Economically Disadvantaged Concepts and Measures

Chapter 3: Available Sources of Labor Market and Occupational Information

Section: Data Collection Programs

Chapter 4: Planning and Implementing Human Resource Programs

Tables Used in This Exercise

Tables 6-10

Exercise 2
WORKSHEET GUIDE FOR DATA ANALYSIS

Task iv: Overall Analysis of Economically Disadvantaged

A. Answer the following questions by checking the appropriate answer using Tables 6A, 6B and 6C.

Identification of the number characteristics of the Economically Disadvantaged Populations (Questions 1-4)

1.	Approximately how many residents age 16 years and older of Lemi County are technically eligible for JTPA Title II Services?		___ 707,000	___ 147,000
	Approximately, what percentage of residents 16 years and older are eligible?		___ 21%	___ 30%
2.	Women account for nearly _____% of the total number of JTPA Title II eligible population.		___ 50%	___ 61%
3.	Nearly (a)% of 16-19 year olds and (b)% of 20-24 year olds are economically disadvantaged.	(a)	___ 17%	___ 35%
		(b)	___ 30%	___ 20%
4.	Nearly ___% of JTPA eligibles had 11 or fewer years of education.		___ 40%	___ 55%

Comparisons of Central City and Suburbs (Questions 5 and 6)

5.	Tables 6B and 6C indicate that nearly (a)% of Capital City residents are eligible for JTPA services, while only (b)% of suburban residents are eligible. Capital City residents are (c) times as likely to be disadvantaged as suburban residents.	(a)	___ 31%	___ 40%
		(b)	___ 14%	___ 20%
		(c)	___ 3	___ 2.2

6. Earlier in our analysis under Exercise 1, labor force participation and unemployment between Capital City and the Suburbs were compared. Examine how allocations of funds between the city and the suburbs might be affected by the factors used to allocate funds.

Complete the following table for the economically disadvantaged.

Measure	Percent of Total Residing In:	
	Capital City	Suburbs
Civilian Labor Force	39.6%	60.4%
Unemployed	46.9%	53.1%
Economically Disadvantaged	______	______

Indicate what factor (or factors) might be used to allocate funding under JTPA within this SDA, how would you use these, and why?

	Allocation Factors	How Used	Why
1.			
2.			
3.			
4.			

Analysis of Economically Disadvantaged Family Heads (Questions 7 and 8)

7. Table 7A indicates that females account for less than (a)% of the family heads, but represent (b)% of JTPA eligible family heads.

(a) ____ 50% ____ 25%
(b) ____ 54% ____ 72%

8. Nearly (a)% of Capital City family heads were eligible for JTPA while (b)% of suburban residents were eligible.

(a) ____ 41% ____ 31%
(b) ____ 12% ____ 21%

Analysis of Economically Disadvantaged Youth (Question 9)

9. Table 9 indicates that Capital City youth were (a) times as likely to be economically disadvantaged as their counterparts in the suburbs, accounting for only 40% of all persons age 16-21 (non collegiate), in the county but (b)% of economically disadvantaged youth in the county.

(a) ____ 4 ____ 2.5
(b) ____ 62.5% ____ 50.5%

FOR DISCUSSION

- What factors impact on economic disadvantagement? How do these vary between the city and the suburbs?

- What problems could be encountered by the economically disadvantaged population groups?

- What is the relationship between the total JTPA eligible population receiving public assistance and the number of disadvantaged persons?

- JTPA places requirements on SDAs to serve special population groups (i.e.: high school dropouts). Who must Lemi County serve in order to adhere to these requirements and in what proportions must these groups be served?

Task v: Identify Key Target Groups

What are your planning recommendations to the County Commissioners and Lemi County Private Industry Council for target group selection based on the above data and your discussions.

Target Groups selected:

1. ____________________
2. ____________________
3. ____________________

Rationale:

EXERCISE 3
INDUSTRY EMPLOYMENT TRENDS ANALYSIS

Tasks to be completed:

(vi) Industry Analysis

Describe trends in the level of employment by industry throughout the county during recent years and identify key growth and declining industries in the local economy.

Relationship to Planning Process

- Analysis of current and projected environment

Information Sources Used

- Current Employment Statistics

Related Text Chapters

Chapter 2: LMI Concepts and Measures

Sections: Structure of Employment Opportunities: Industry and Occupational Employment Concepts

Industry and Occupation Employment Concepts and Measures

Chapter 3: Available Sources of Labor Market Information

Sections: Data Collections Programs
Industry Employment

Tables Used in this Exercise

Tables 11-13

Exercise 3
WORKSHEET GUIDE FOR DATA ANALYSIS

Task vi: Industry Analysis

Answer the following questions by checking the appropriate answer using Tables 11, 12 and 13.

1. Not all industrial sectors experienced the same rate of employment growth between 1980-84. Complete the following lists to analyze industry employment and possible shifts in the industrial structure in Lemi County.

   a. Rank order the eight major industries by absolute employment growth.

Industry	Absolute Growth
1. Services	+15.7
2. Retail Trade	+4.4
3. Finance	+3.8
4. Construction	+1.6
5.	
6.	
7.	
8.	

   b. Rank order by percent growth the 5 fastest growing 2 digit industries or major industries (use 2 digit industries where data are available, major industries where 2 digit detail is not shown).

	Industry	Percent Growth	Absolute Growth
1.			
2.			
3.			
4.			
5.			

2. The overall rate of employment growth in Capital City between 1980-1984 was (a) while for the same period suburban employment increased by almost (b). Within Capital City, nearly all growth occurred in the services and (c) sectors

(a)	___	2.1%	___	3.6%
(b)	___	7.0%	___	5.0%
(c)	___	finance	___	trade

FOR DISCUSSION

- What does the employment growth/decline indicate about the impact of the recession and normal business cycles on Lemi County employment growth and what is the general long-term outlook for employment growth?

- What do the shifts in the industrial employment structure indicate for the future of Lemi County?

EXERCISE 4

TARGETING OCCUPATIONS FOR TRAINING

Tasks to be completed:

(vii) Analysis of Occupational Employment and Opportunities

Analyze projected job opportunities by occupation in the local labor market for the remainder of the decade. Given employment data for 20 occupations, identify which occupations have the best and worst employment prospects as measured by the numerical change in levels of employment over the decade (absolute growth) and by the percentage change in employment (relative growth).

(viii) Analysis of Relevance of Occupations for JTPA Training

Identify the earnings expectations and required training time for occupations for which training is being contemplated. Analyze how these factors may help identify if an occupation is an appropriate target for JTPA training.

(ix) Analysis of Available Occupational Supply

Analyze the supply of trained workers available for the occupations being considered by reviewing occupational supply/demand data and the job placement rates of related training programs. Identify those occupations which appear to be candidates for JTPA training based on the analysis of the available occupational supply.

Relationship to Planning Process

- Analysis of existing and projected environment
- Establish program goals and objectives
- Review and select program strategies

Information Sources Used

- Occupational Employment Statistics
- Occupational Information Systems

Related Text Chapters

Chapter 2: LMI Concepts and Measures

Sections: Structure of Employment Opportunities: Industry and Occupational Employment Concepts
Industry and Occupational Employment Concepts and Measures
Occupational Employment Concepts and Classification Systems
Occupational Staffing Patterns of Industries and the Industry/Occupation Matrix
Employment Projections Concepts and Measures
Occupational Supply: Concepts and Measures

Tables Used in this Exercise

Tables 14-18

Exercise 4
WORKSHEET GUIDE FOR DATA ANALYSIS

Task vii: Analysis of Occupational Employment and Opportunities.

The purpose of this task is to review available data on the employment prospects for 20 occupations in Lemi County and identify which of the 20 may be appropriate to consider for JTPA training. As noted earlier the Lemi PIC is on record supporting JTPA training for occupations which have the best employment prospects.

In this task employment data will be analyzed to identify which of the occupations have the best and those that appear to have the poorest employment prospects. To do this first look at the rate of growth for the occupations from 1980 to 1990. This will give a measure of the relative growth in employment. Also look at the difference in the levels of employment for these occupations between 1980 and 1990. This will give a measure of the absolute growth in employment. Together these measures of employment growth provide an indication of the employment prospects. As an outcome of this task, occupations that, because of questionable employment prospects, can be identified that may need to be excluded from consideration at this time.

To complete this task, data taken from Table 14 will be used. On the Task vii worksheet, on the following page, data from Table 14 covering growth rate (column (2)) and changes in employment levels (column (4)) are entered. Complete the activities listed on the pages following the worksheet.

TASK vii WORKSHEET
Analysis of Occupational Employment and Opportunities

Occupations	Growth Rate (1980-1990) (Relative Change)		Change in Employment (1980-1990) (Absolute Change)		Summary
	%	Rank (1-20)	Number	Rank (1-20)	
(1)	(2)	(3)	(4)	(5)	(6)
Accountants	24.3		1,350		
Bookkeepers	12.5		1,269		
Carpenters	16.3		660		
Cashiers	13.9		1,355		
Cleaning Service Workers	14.3		2,200		
Computer Programmers	47.3		1,110		
Die Cutter	-12.2		-222		
Electrical and Electronic Assemblers	24.0		980		
Electrical and Electronic Technicians	46.7		1,860		
Electrical Engineers	40.4		1,690		
Food Preparation, Service Workers Fast Foods	47.1		1,610		
Licensed Practical Nurse	20.2		720		
Professional Nurse	30.0		3,070		
Purchasing Agent	-0.7		-14		
Secretaries and Word Processors	27.2		4,260		
Sewing Machine Operator	-4.0		-419		
Stenographer	-6.2		-200		
Stitcher, Standard Machine	-4.5		-100		
Waiters and Waitresses	20.0		2,671		
X-Ray/Radiological Technician	29.3		620		

1. Growth Rate -- Examine the data in column (2) of the Task vii Worksheet. Assign a numerical ranking from 1 to 20 (with 1 = largest), to occupational growth rates in column (2) of Task vii worksheet. Record the rankings in column (3).

2. List the five occupations that have the fastest rate of growth (1980-1990) in Lemi County. List the five occupations with the slowest rate of growth in Lemi County.

   a. Fastest Growing

Rank	Occupation	Growth Rate
1		
2		
3		
4		
5		

   b. Slowest Growing

Rank	Occupations	Growth Rate
16		
17		
18		
19		
20		

3. Changes in Employment -- Assign a numerical ranking, from 1 to 20 (with 1 = largest), to the changes in employment data in column (4) of Task vii worksheet. Record the rankings in column (5).

4. List the five occupations which have the largest change in employment level in column (5). List the five occupations which have the lowest change in employment level.

   a. Largest number of job openings

Rank	Occupation	Change in Employment
1		
2		
3		
4		
5		

b. Smallest number of job openings

Rank	Occupation	Change in Employment
16		
17		
18		
19		
20		

5. Identify five occupations which might be excluded at this stage based on their low ranking in both occupational criteria. Place a question mark (?) in column (6) of the worksheet across from these five occupations. List the occupations below:

1.
2.
3.
4.
5.

FOR DISCUSSION

- Are there other occupational employment priorities the Lemi County PIC could have used? Have such priorities been established in your SDA? What are they?

- Should the Lemi County PIC exclude from consideration training for occupations which rated low in the above exercise? Would you? Would you want more information before you make that decision? What information?

Task viii: Analysis of Relevance of Occupations for JTPA Training

The purpose of this task is to assess the relevance of the occupations identified in task vii for JTPA training. The Lemi County PIC has indicated a strong preference for occupational training with the following features:

- Training length -- The shorter the better. Shorter training reduces training costs and speeds-up client entry into the labor force. Assuming that the only training considered adds to the employability of the participants, shorter training is more economical.

- Earnings expectation -- The greater the better. High wage occupations are good targets for training, program completers have better prospects for earning wages above the lower living level standards. ($8,200 in Lemi County)

In this task 15 occupations will be compared in terms of the length of training required and the earnings expectations. Five occupations were deleted from consideration as a result of the earlier analysis. Data taken from Table 15A and 15E will be used. The Task viii Worksheet (on the next page) lists the 15 occupations in alphabetical order. Next to the occupational titles, data from Table 15A and 15E covering the length of training (column (2)) and the earnings (column (4)) have been entered. Complete the following activities.

1. Training Length -- Examine the data in column (2) of Task viii Worksheet. Identify those occupations which do not exceed the PIC limit of 2 years by placing a check in column (3). If training were limited to two years in length, how many occupations could you consider? ________

2. Earnings Expectations -- Examine the data in column (4) of Task viii Worksheet. Identify those occupations whose earnings expectations exceed the lower living level ($8,200) by placing a check in column (5). If training were limited to occupations with earnings expectations above $8,200, how many occupations could you consider? ________

3. Summary Rating -- Combine the ratings of the preceding factors by identifying which occupations met minimum requirements (had a check) in both columns (3) and (5). Place a check in column (6) for these occupations. If training were limited to occupations that met both requirements, how many occupations could you consider? _____ List them:

   1.
   2.
   3.
   4.
   5.
   6.
   7.
   8.
   9.
   10.
   11.

TASK viii WORKSHEET
Relevance of Occupations for JTPA Training

Occupation	Length of Training		Earnings Expectation		Summary
(1)	(2)	(3)	(4)	(5)	(6)
Accountants	4-10 years		$17,682		
Bookkeepers	3-12 months		10,605		
Carpenters	2-4 years		12,346		
Cashiers	1-3 months		9,653		
Cleaning Service Workers	1 month or less		10,731		
Computer Programmers	2-4 years		18,164		
Electrical and Electronic Assemblers	3-6 months		9,105		
Electrical and Electronic Technicians	1-2 years		16,349		
Electrical Engineers	4-10 years		26,807		
Food Preparation, Service Workers, Fast Food	1 month or less		7,636		
Licensed Practical Nurse	1-2 years		11,175		
Professional Nurse (RN)	2-4 years		15,660		
Secretaries and Word Processors	1-2 years		11,009		
Waiters and Waitresses	1 month or less		7,636		
X-Ray/Radiological Technician	2 years		13,557		

FOR DISCUSSION

The previous analysis has moved through a structured, though simplified, rating of occupations. The consideration of JTPA training areas also needs to be tempered by some broader considerations such as those listed below:

- Length of Training
  - Are multi-year training programs (especially over 2 years) appropriate for JTPA? Are there any of the 15 occupations in Item 1 above that require 2 or more years of training but which you would still like to consider? If so, add them to your list in Item 3 above.
  - Are very short (less than 3 months) training programs appropriate for JTPA? Do they warrant classroom training, other training methods. Are there any occupations on your list in Item 3 above that you might drop from consideration because of this issue? If so, delete them from your list.
- Earnings Expectation
  - Should JTPA train for occupations which may not pay above the lower living level? Are there any of the 15 occupations in Item 2 above that pay less than $8,200 which you would still like to consider? If so, add them to your list in Item 3 above.

Think about the implications of these issues:

- Are there other priorities the Lemi County PIC could have used to analyze occupations relevant to JTPA training? Have priorities been established in your SDA? What are they?
- Should the Lemi County PIC avoid training in low ranking occupations? Would you? What other information would be helpful?

Task ix: Analysis of Available Occupational Supply

The purpose of this task is to analyze the supply of trained workers available for the occupations being considered. Existing training programs may be meeting all the local need even if there are a large number of job openings and the earnings expectations are high. It is therefore important to understand not only the employment opportunities (demand) for different occupations but also the availability of trained workers (supply) for these occupations. Several different sources of occupational supply exist including graduates/completers of vocational program and colleges, as well as the unemployed. JTPA planners need to be aware of the extent to which existing training is producing an adequate supply relative to demand for trained workers.

In the task 15 occupations will be compared on two different measures of available supply; supply/demand relationship and related placement rates. Data taken from Tables 17 and 18 will be used . On the Task ix Worksheet (on the following page), data from these tables are entered which cover occupational supply (column (2)) occupational demand (column (3)) and the related job placement rates of existing training programs (column (5)). Complete the following activities:

1. Occupational Supply/Demand -- Examine the data in columns (2) and (3) of the Task ix Worksheet. The data in these columns represents the number of job openings available in the occupations each year (column (3)) and the number of people being trained each year to work in the occupations (column (2)). The supply/demand relationship can be analyzed in several ways*, including the following:

   - Shortage (+) -- demand exceeds supply
   - Balance (o) -- about the same as supply
   - Surplus (-) -- demand less than supply

   Shortage occupations offer better employment prospects for new training programs than do surplus occupations, everything else being equal. For each occupation, assign a rating of "+", "o", or "-" based on the data presented in column (3). Record the ratings in column (4). If you were only considering occupations rated as shortage on balance, how many occupations would be left? ________

2. Related Job Placement Rate -- Examine the data in column (5). These data represent the success of training program completers in finding employment related to their training. Most vocational programs have the objective of related job placement. A high placement rate indicates that existing training programs have been successful and indirectly indicates that opportunity may exist for supporting new training programs in this area. A low placement rate indicates

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* The supply/demand analysis in this example is very simplistic. For a discussion of more thorough methods of analysis, see NOICC's Occupational Information System (OIS) Handbook, Vol. 2 and Units of Analysis.

TASK ix WORKSHEET
Analysis of Available Occupational Supply

Occupations	Occupational Supply/ Demand			Job Placement Rate		Summary
Title (1)	Inst. Supply (2)	Demand (3)	Rating (4)	% (5)	Rating (6)	Rating (7)
Accountants	*	*		*		
Bookkeepers	733	604		50		
Carpenters	205	158		20		
Cashiers	180	336		55		
Cleaning Service Workers	90	1,147		53		
Computer Programmers	80	140		80		
Electrical and Electronic Assemblers	84	130		71		
Electrical and Electronic Technicians	136	222		75		
Electrical Engineers	*	*		*		
Food Preparation, Service Workers, Fast Food	148	296		58		
Licensed Practical Nurse	320	270		80		
Professional Nurse	494	760		*		
Secretaries and Word Processors	1,177	1,129		60		
Waiters and Waitresses	56	700		58		
X-Ray/Radiological Technician	80	148		70		

* Data not available

existing training programs are having difficulty placing their graduates and indirectly indicates possible over-supply and limited opportunities for new training in the area. The related placement rate can be analyzed in the following terms:

- High (+) -- placement rate above average
- Average (o) -- placement rate about the same as average (average 61%)
- Low (-) -- placement rate below average

For each occupation assign a rating of "+", "o", or "-" based on the data presented in column (5). Record the ratings in column (6). If you were only considering occupations rated average or high, how many occupations would be left? _____

3. Summary Rating -- Combine the previous two measures of available occupational supply by identifying which occupations have moderate to positive ratings ("o" or "+") in both columns (4) and (6). Place a check in column (7) for these occupations. If training were limited to occupations that met both factors, how many occupations could you consider? _____ List them:

    1.
    2.
    3.
    4.
    5.
    6.
    7.

4. Comparison of Summary Ratings -- Compare the list in Item 3 above with the list developed in Item 3 of Task viii. How many occupations were on both lists? ___ Based on the Lemi County PIC priorities and the data you were given, would these appear to be the best areas for training? List 5 occupations that appear to be most promising for possible training programs.

    1.
    2.
    3.
    4.
    5.

FOR DISCUSSION

- Are there measures other than occupational supply/demand relationship and job placement rates of existing training programs which could have been used in the Task ix? If so what are they?

- Would you be comfortable supporting training programs for the highest rated occupations identified in Item 4 above? Why or why not?

- Would you be comfortable excluding training programs for the lowest rated occupations which did not make the lists in Task vii or ix?

- Some SDAs target occupations in which women and minorities are under represented. Could this priority be added to this example? What other priorities are you familar with? Who sets the priorities for targeting the training programs in your SDA?

- The occupational list in Item 4 above is based on data about occupations and programs. Should the selection of JTPA training programs also reflect the needs and abilities of JTPA clients? How could this be done?

SECTION 3
CASE STUDY TABLES

The case study tables have been organized in the following manner:

(a) Labor Force Developments (Tables 1-5) -- The first set of tables (1-5) provide information on recent aggregate labor force developments in Lemi County, the racial/ethnic composition of the labor force in Lemi County and its major geographic subdivisions, the labor force participation rates of selected age/sex/racial-ethnic groups, the unemployment problems of 16-21 year olds. The data appearing in these tables are most relevant to planning activities under Tasks 1 through 3. It should be noted that the local labor area formed by Lemi County is referred to as Labor Area A in all of our planning tables. Separate breakouts of the labor force and unemployment data are provided for Capital City and the balance of Lemi County referred to as the "suburbs" in our planning tables.

(b) Demographics: The Economically Disadvantaged (Tables 6-10) -- The second set of tables (6-10) provide detailed data on the economically disadvantaged population of Lemi County, Capital City, and the balance of county. Separate estimates of the total number of economically disadvantaged persons (age 16 and older), family heads, and youths (age 16-21) are provided for the entire county, Capital City, and the balance of county. Data on selected demographic and socioeconomic characteristics of the economically disadvantaged and their labor force status at the time of the 1980 decennial census are also provided. The information that can be gleaned from these tables is relevant to planning activities under Tasks 4 and 5, which are focused on the selection of local target groups for JTPA programs.

(c) Industry Employent (Tables 11-13) -- The third set of table (11-13) provide data on the level and structure of employment by industry in Lemi County, Capital City, and the balance of county. Trends in employment by industry for the 1980-84 period can be identified through the use of these data. These data are most relevant to planning activities under Task 6.

(d) Occupational Employment and Characteristics (Tables 14-16) -- The fourth set of tables (14-16) provide data on selected occupations characterized by substantial projected employment growth in Lemi County for the decade of the 1980's. Data are provided on the actual 1980 and projected 1990 employment levels for these occupations, projected employment growth over the decade, characteristics of persons employed in these occupations in Lemi County, the annual earnings of workers in these occupations, and the local industries that are dominant employers of these workers. The data appearing in these planning tables are most relevant to completing assignments under Task 7.

(e) Occupational Supply/Demand and Placement Data (Tables 17-18) -- The last set of tables (17-18) presents data on projected annual job openings and institutional supply from secondary and post-secondary education and training institutions for the occupations being considered for training by the Private Industry Council. The placement performance of recent job training programs funded out of CETA and JTPA monies during the past 18 months is summarized in Table 18. The data appearing in these two tables are directly relevant to the planning activities under Tasks 8 and 9.

Table 1
Aggregate Labor Force Developments in the U.S., Lemi County Capital City, and Its Suburbs

	(A)	(B)	(C)	(D)	(E)
Geographic Area	1980	1981	1982	1983	1984
U.S.					
Civilian Labor Force	106,940	108,670	110,204	111,550	113,124
Employed	99,303	100,397	99,526	100,832	104,443
Unemployed	7,637	8,273	10,678	10,717	8,681
Unemployment Rate	7.1%	7.6%	9.7%	9.6%	7.7%
LEMI County					
Civilian Labor Force	460,000	465,000	468,000	472,500	478,400
Employed	425,500	428,730	427,750	434,700	447,300
Unemployed	34,500	36,270	40,250	37,800	31,100
Unemployment Rate	7.5%	7.8%	8.6%	8.0%	6.5%
Capital City					
Civilian Labor Force	184,000	185,200	185,000	187,500	189,520
Employed	168,360	169,100	168,700	170,800	174,920
Unemployed	15,640	16,100	17,300	16,700	14,600
Unemployment Rate	8.5%	8.7%	9.3%	8.9%	7.7%
Suburbs					
Civilian Labor Force	276,000	279,800	282,000	285,000	288,800
Employed	257,140	259,630	259,050	263,800	272,380
Unemployed	18,860	20,170	22,950	21,100	16,420
Unemployment Rate	6.8%	7.2%	8.1%	7.4%	5.7%

Source: CPS and LAUS

Table 2
Racial/Ethnic Composition of the Civilian Labor Force in Lemi County, Capital City, and Its Suburbs, March 1980
(in %)

	(A)	(B)	(C)
Group	Lemi County	Capital City	Suburbs
White, Non-Hispanic			
• CLF	394,800	135,800	259,000
• Emp.	367,200	125,600	241,600
• Unemp.	27,600	10,200	17,400
• U. Rate	7.0%	7.5%	6.7%
Black and Other, Non-Hispanic			
• CLF	53,800	39,800	14,000
• Emp.	47,480	35,000	12,480
• Unemp.	6,320	4,800	1,520
• U. Rate	11.7%	12.0%	10.8%
Hispanics			
• CLF	9,900	7,900	2,000
• Emp.	8,920	7,100	1,820
• Unemp.	980	800	180
• U. Rate	9.9%	10.1%	9.0%
Total			
• CLF	458,500	183,500	275,000
• Emp.	423,600	167,700	255,900
• Unemp.	34,900	15,800	19,100
• U. Rate	7.6%	8.6%	6.9%

SOURCE: 1980 Census

Table 3A
Civilian Labor Force Participation Rates of Residents (16+) in Labor Area A by Racial/Ethnic Group Age, and Geographic Location, March 1980
(in %)

Capital City

	(A) White, non-Hispanic	(B) Black, non-Hispanic	(C) Hispanic
All 16+	62.1	58.5	51.1
16-19	48.7	33.9	31.4
20-24	69.9	62.2	51.1
25-54	80.9	71.6	59.5
55-64	60.1	52.8	42.7
65+	13.0	14.0	9.1

Suburbs

	(A) White, non-Hispanic	(B) Black, non-Hispanic	(C) Hispanic
All 16+	66.1	67.8	62.1
16-19	55.4	44.1	47.2
20-24	80.4	66.7	61.1
25-54	80.7	82.9	71.4
55-64	65.5	67.8	64.8
65+	15.4	15.0	17.6

Source: 1980 Census

Table 3B

Civilian Labor Force Participation Rates of Residents (16+) in Labor Area A by Sex, Age, and Geographic Location, March 1980

(in %)

	Capital City	
	(A) Male	(B) Female
All 16+	69.1	53.9
16-19	42.2	45.0
20-24	67.7	66.7
25-54	87.3	68.4
55-64	71.9	51.7
65+	17.8	10.0

	Suburbs	
	(A) Male	(B) Female
All 16+	78.8	55.1
16-19	54.5	55.4
20-24	82.9	76.7
25-54	94.9	67.3
55-64	81.5	51.6
65+	24.1	10.3

Source: 1980 Census

Table 4A
Unemployment Rates of Residents (16+) of Labor Area A by Racial/Ethnic Group, Age, and Geographic Location, March 1980
(in %)

Capital City

	(A) White, non-Hispanic	(B) Black, non-Hispanic	(C) Hispanic
All 16+	7.5	12.0	10.1
16-19	14.9	27.0	19.8
20-24	9.0	23.7	8.7
25-54	6.6	7.7	8.7
55-64	7.7	8.7	*
65+	8.2	15.0	*

Suburbs

	(A) White, non-Hispanic	(B) Black, non-Hispanic	(C) Hispanic
All 16+	6.7	10.8	9.0
16-19	13.0	16.9	14.5
20-24	8.6	15.7	9.1
25-54	5.3	8.2	8.0
55-64	4.9	7.9	*
65+	7.6	*	*

Source: 1980 Census

Table 4B
Unemployment Rates of Residents (16+) of Labor Area A by Age, and Geographic Location, March 1980
(in %)

	Capital City	
	(A) Male	(B) Female
All 16+	9.9	7.2
16-19	20.4	16.4
20-24	12.8	10.1
25-54	8.2	6.2
55-64	8.8	4.8
65+	6.9	10.4

	Suburbs	
	(A) Male	(B) Female
All 16+	7.4	6.3
16-19	14.2	13.7
20-24	11.7	9.9
25-54	5.6	5.5
55-64	5.2	4.7
65+	6.5	7.7

Source: 1980 Census

Table 5
Labor Force Status of 16-21 Year Old Residents in Labor Area A by Schooling Status and Geographic Location, March 1980

Capital City

Labor Force Measure	(A) High School Students	(B) High School Graduates, Not Enrolled	(C) High School Dropouts
Civilian Labor Force Participation Rate	38.7	75.0	56.8
Unemployment Rate	14.2	13.4	41.1
Employment/ Population Ratio	33.2	65.0	33.4

Suburbs

Labor Force Measure	(A) High School Students	(B) High School Graduates, Not Enrolled	(C) High School Dropouts
Civilian Labor Force Participation Rate	47.5	88.9	67.9
Unemployment Rate	12.5	11.5	25.1
Employment/ Population Ratio	41.6	78.7	50.9

Source: 1980 Census

Table 6A
Numbers and Characteristics of Persons (16+) Eligible for JTPA Title II Programs in Lemi County

Subgroup	(A) Number of Persons (16+)	(B) Number of Persons Eligible for JTPA	(C) Percent of Persons in Subgroup Eligible for JTPA	(D) Share of All JTPA Eligibles
All Persons (16+)	706,900	146,500	20.7%	100.0%
Sex				
Men	325,300	57,100	17.6%	39.0%
Women	381,600	89,500	23.4%	61.0%
Age				
16-19	71,500	25,000	35.0%	17.1%
20-24	99,800	29,700	29.8%	20.3%
25-54	342,200	52,700	15.4%	36.0%
55-64	89,000	13,100	14.7%	8.9%
65+	104,400	26,200	25.1%	17.9%
Race/Ethnic Origin				
White, non-Hispanic	611,700	106,100	17.3%	72.4%
Black, non-Hispanic	60,600	25,200	41.6%	17.2%
Other non-white, non-Hispanic	14,400	5,700	39.6%	3.9%
Hispanic	20,100	9,510	47.3%	6.5%
Educational Attainment				
8 or fewer years	71,300	26,200	36.7%	17.9%
9-11 years	115,300	32,000	27.8%	21.8%
12 years	245,300	47,700	19.4%	32.6%
13 or more years	275,000	40,500	14.7%	27.6%
Public Assistance				
Receives public assistance	68,300	68,300	100.0%	46.6%
Does not receive public assistance	638,600	78,200	12.2%	53.4%

Source: 1980 Census

Table 6B
Numbers and Characteristics of Persons (16+) Eligible for JTPA Title II Programs in Capital City

Subgroup	(A) Number of Persons (16+)	(B) Number of Persons Eligible for JTPA	(C) Percent of Persons in Subgroup Eligible for JTPA	(D) Share of All JTPA Eligibles
All Persons (16+)	291,300	89,600	30.7%	100.0%
Sex				
Men	132,300	35,600	26.9%	39.7%
Women	159,000	54,000	34.0%	60.3%
Age				
16-19	30,800	16,200	52.6%	18.1%
20-24	51,800	20,800	40.3%	23.3%
25-54	133,400	31,200	23.4%	34.8%
55-64	33,400	7,600	22.8%	8.4%
65+	41,800	13,700	32.8%	15.3%
Race/ Ethnic Origin				
White; non-Hispanic	210,900	53,600	25.4%	59.8%
Black, non-Hispanic	55,100	23,600	42.8%	26.3%
Other Nonwhite, non-Hispanic	10,100	4,000	39.6%	4.5%
Hispanic	15,200	8,410	55.4%	9.4%
Educational Attainment				
8 or fewer years	38,100	17,200	45.1%	19.2%
9-11 years	49,500	19,200	38.8%	21.4%
12 years	96,300	27,600	28.7%	30.8%
13 or more years	107,400	25,500	23.7%	28.4%
Public Assistance				
Receives Public Assistance	40,600	40,600	100.0%	45.3%
Does not Receive Public Assistance	250,700	49,000	19.5%	54.7%

Source: 1980 Census

Table 6C
Numbers and Characteristics of Persons (16+) Eligible for JTPA Title II Programs in the Suburbs of Lemi County

Subgroup	(A) Number of Persons (16+) in Population	(B) Number of Persons Eligible for JTPA	(C) Percent of Persons in Subgroup Eligible for JTPA	(D) Share of All JTPA Eligibles
All Persons (16+)	415,600	56,900	13.7%	100.0%
Sex				
Men	193,000	21,500	11.1%	37.8%
Women	222,600	35,500	15.9%	62.2%
Age				
16-19	40,700	8,800	21.6%	15.5%
20-24	47,800	8,800	18.4%	15.5%
25-54	208,800	21,500	10.3%	37.8%
55-64	55,600	5,500	9.9%	9.7%
65+	62,600	12,500	20.0%	22.0%
Race/Ethnic Origin				
White	400,800	52,500	13.1%	92.3%
Black	5,500	1,600	29.1%	2.8%
Other Nonwhite	4,300	1,700	39.5%	3.0%
Hispanic	4,900	1,100	22.4%	1.9%
Educational Attainment				
8 or fewer years	33,200	9,000	27.1%	15.8%
9-11 years	65,800	12,800	19.5%	22.2%
12 years	149,000	20,100	13.5%	35.3%
13 or more years	167,600	15,000	8.8%	26.4%
Public Assistance				
Receives Public Assistance	27,700	27,700	100.0%	48.7%
Does not Receive Public Assistance	388,000	29,300	7.6%	51.3%

Source: 1980 Census

Table 7A
Numbers and Characteristics of Family Heads (16+) Eligible for JTPA Title II Programs in Lemi County

Subgroup	(A) Number of Family Heads (16+)	(B) Number of Family Heads Eligible for JTPA	(C) Percent of Family Heads in Subgroup Eligible for JTPA	(D) Share of All JTPA Eligible Family Heads
All Family Heads (16+)	213,400	40,300	18.9%	100.0%
Sex				
Men	161,400	18,500	11.5%	45.9%
Women	52,000	21,800	41.9%	54.1%
Age				
16-19	730	475	65.0%	1.2%
20-24	8,800	3,320	37.7%	8.2%
25-54	130,100	25,050	19.3%	62.1%
55-64	38,700	4,620	11.9%	11.5%
65+	35,000	6,870	19.6%	17.0%
Race/Ethnic Origin				
White, non-Hispanic	182,800	26,300	14.4%	65.3%
Black, non-Hispanic	20,140	9,010	44.7%	22.4%
Other non-White, non-Hispanic	3,900	1,190	30.5%	3.0%
Hispanic	6,750	3,740	55.4%	9.3%
Educational Attainment				
8 or fewer years	26,100	9,160	35.1%	22.7%
9-11 years	30,500	9,470	31.0%	23.5%
12 years	75,100	14,800	19.7%	36.7%
13 or more years	81,900	6,960	8.5%	17.3%
Public Assistance				
Receives public assistance	24,800	24,800	100.0%	65.5%
Does not receive public assistance	188,600	15,500	8.3%	38.5%

Source: 1980 Census

Table 7B
Numbers and Characteristics of Family Heads (16+) Eligible for JTPA Title II Programs in Capital City

Subgroup	(A) Number of Family Heads (16+)	(B) Number of Family Heads Eligible for JTPA	(C) Percent of Family Heads in Subgroup Eligible for JPTA	(D) Share or All JTPA Eligible Family Heads
All Family Heads (16+)	76,700	23,500	30.6%	100.0%
Sex				
Men	49,900	9,400	18.8%	40.0%
Women	26,800	14,100	52.6%	60.0%
Age				
16-19	500	325	65.0%	1.4%
20-24	4,600	2,300	50.0%	9.8%
25-54	45,100	14,900	33.0%	63.4%
55-64	13,200	2,500	18.9%	10.6%
65+	13,200	3,500	26.5%	14.9%
Race/Ethnic Origin				
White	50,700	10,800	21.3%	46.0%
Black	18,300	8,500	46.4%	36.2%
Other Nonwhite	2,700	980	36.3%	4.2%
Hispanic	5,200	3,190	61.3%	13.6%
Educational Attainment				
8 or fewer years	13,600	6,060	44.6%	25.8%
9-11 years	13,700	5,870	42.8%	25.0%
12 years	28,100	8,200	29.2%	34.9%
13 or more years	21,400	3,460	16.2%	14.7%
Public Assistance				
Does not receive public assistance	61,900	8,700	14.1%	37.1%
Receives public assistance	14,800	14,800	100.0%	63.0%

Source: 1980 Census

Table 7C
Numbers and Characteristics of Family Heads (16+) Eligible for JTPA Title II Programs in the Suburbs of Lemi County

Subgroup	(A) Number of Family Heads (16+)	(B) Number of Family Heads Eligible for JTPA	(C) Percent of Family Heads in Subgroup Eligible for JPTA	(D) Share of All JTPA Eligible Family Heads
All Family Heads (16+)	136,700	16,800	12.3%	100.0%
Sex				
Men	111,500	9,100	8.1%	54.2%
Women	25,200	7,700	30.6%	45.8%
Age				
16-19	230	150	65.2%	.9%
20-24	4,200	1,020	24.3%	6.1%
25-54	85,000	10,150	11.9%	60.4%
55-64	25,500	2,120	8.3%	12.6%
65+	21,800	3,370	15.5%	20.1%
Race/Ethnic Origin				
White	132,100	15,500	11.7%	92.2%
Black	1,840	510	27.7%	3.0%
Other Nonwhite	1,200	210	17.5%	1.3%
Hispanic	1,550	550	35:5%	3.3%
Educational Attainment				
8 or fewer years	12,500	3,100	24.8%	18.5%
9-11 years	16,800	3,600	21.4%	21.4%
12 years	47,000	6,600	14.0%	39.3%
13 or more years	60,500	3,500	5.8%	20.8%
Public Assistance				
Receives public assistance	10,000	10,000	100.0%	59.5%
Does not receive public assistance	126,700	6,800	5.4%	40.5%

Source: 1980 Census

Table 8
Labor Force Status of Family Heads in Labor Area A Capital City, and Suburbs by JTPA Eligibility Status

Lemi County	(A) JTPA Eligible	(B) Not JTPA Eligible
Number of Family Heads	40,300	173,100
Civilian Labor Force	18,920	139,400
Employed	15,950	132,950
Unemployed	2,970	6,450
Civilian Labor Force Participation Rate	46.9%	80.5%
Unemployment Rate	15.7%	4.6%
Employment/Population Ratio	39.6%	76.8%
CAPITAL CITY		
Number of Family Heads	23,500	53,200
Civilian Labor Force	9,850	40,400
Employed	8,290	37,950
Unemployed	1,560	2,450
Civilian Labor Force Participation Rate	41.9%	75.9%
Unemployment Rate	15.8%	6.1%
Employment/Population Ratio	35.3%	71.3%
SUBURBS		
Numbers of Family Heads	16,800	119,900
Civilian Labor Force	9,070	99,000
Employed	7,660	95,000
Unemployed	1,410	4,000
Civilian Labor Force Participation Rate	54.0%	82.6%
Unemployment Rate	15.5%	4.0%
Employment/Population Ratio	45.6%	79.2%

Source: 1980 Census

Table 9
Number and Distribution of 16-21 Year Old JTPA Eligibles, Excluding College Students, by School Status and Resident within Labor Area A

Lemi County

	(A) Number of Persons (16-21)	(B) Number of JTPA Eligible Youth	(C) Percent of Youth in Subgroup Eligible for JTPA	(D) Share of JTPA Eligible Youth
All	66,950	17,340	25.9%	100.0%
High School Students	38,600	9,400	24.3%	54.2%
High School Dropouts	8,850	4,040	45.6%	23.3%
Non-Enrolled High School Graduates	19,500	3,900	20.0%	22.5%

Capital City

	(A) Number of Persons (16-21)	(B) Number of JTPA Eligible Youth	(C) Percent of Youth in Subgroup Eligible for JTPA	(D) Share of JTPA Eligible Youth
All	26,350	10,850	40.8%	100.0%
High School Students	14,400	5,800	40.3%	54.0%
High School Dropouts	4,850	2,750	56.7%	25.6%
Non-Enrolled High School Graduates	7,100	2,200		20.5%

Suburbs

	(A) Number of Persons (16-21)	(B) Number of JPTA Eligible Youth	(C) Percent of Youth in Subgroup Eligible for JTPA	(D) Share of JTPA Eligible Youth
All	40,600	6,590	16.2%	100.0%
High School Students	24,200	3,600	14.9%	54.6%
High School Droputs	4,000	1,290	24.4%	19.6%
Non-Enrolled High School Graduates	12,400	1,700	13.7%	25.8%

Source: 1980 Census

Table 10A
Labor Force Status of JTPA Eligible Youth, 16-21 Year Olds, by School Status and Resident Within Labor Area A (Excluding College Students)

Lemi County	(A) High School Students	(B) High School Dropouts	(C) High School Graduates Not Enrolled
Total Persons	9,400	4,040	3,900
Civilian Labor Force	3,190	1,800	2,430
Employed	2,540	940	1,990
Unemployed	650	860	440
Civilian Labor Force Participation Rate	33.9%	44.6%	62.3%
Unemployment Rate	20.4%	47.8%	18.1%
Employment/Population Ratio	27.0%	23.3%	51.0%
CAPITAL CITY			
Total Persons	5,800	2,750	2,200
Civilian Labor Force	1,790	1,140	1,200
Employed	1,420	560	960
Unemployed	370	580	240
Civilian Labor Force Participation Rate	30.9%	41.4%	54.5%
Unemployment Rate	20.7%	50.9%	20.0%
Employment/Population Ratio	24.5%	21.1%	43.6%
SUBURBS			
Total Persons	3,600	1,290	1,700
Civilian Labor Force	1,400	660	1,230
Employed	1,120	380	1,030
Unemployed	280	280	200
Civilian Labor Force Participation Rate	38.9%	51.2%	72.4%
Unemployment Rate	20.0%	42.4%	16.2%
Employment/Population Ratio	31.1%	29.5%	60.6%

Source: 1980 Census

Table 10B
Labor Force Status of 16-21 Year Olds Not Eligible for JTPA Services by School Status and Resident Within Labor Area A (Excluding College Students)

[illegible] COUNTY	(A) High School Students	(B) High School Dropouts	(C) High School Graduates Not Enrolled
Total Persons	29,200	4,810	15,600
Civilian Labor Force	13,850	3,590	13,930
Employed	12,320	2,580	12,510
Unemployed	1,530	1,040	1,320
Civilian Labor Force Participation Rate	47.4%	74.6%	89.3%
Unemployment Rate	11.0%	29.0%	9.5%
Employment/Population Ratio	42.2%	53.6%	80.8%
CAPITAL CITY			
Total Persons	8,500	2,100	4,900
Civilian Labor Force	3,760	1,560	4,200
Employed	3,300	1,050	3,740
Unemployed	460	510	460
Civilian Labor Force Participation Rate	44.2%	74.3%	85.7%
Unemployment Rate	12.2%	32.7%	11.0%
Employment/Population Ratio	38.9%	50.0%	76.3%
SUBURBS			
Total Persons	20,600	2,710	10,700
Civilian Labor Force	10,090	2,030	9,730
Employed	9,020	1,530	8,870
Unemployed	1,070	530	860
Civilian Labor Force Participation Rate	49.0%	74.9%	90.9%
Unemployment Rate	10.6%	26.1%	8.8%
Employment/Population Ratio	43.8%	56.5%	82.9%

Source: 1980 Census

Table 11
Nonagricultural Payroll Employment by Major Industry and Selected Two-Digit SIC Industries Within Lemi County (in 1,000's)

Industry	1980	1981	1982	1983	1984
Construction	10.6	10.9	11.9	11.9	12.2
Manufacturing	78.4	78.4	77.0	74.3	78.6
• Durable Goods	51.7	52.4	51.8	50.3	54.5
• Fabricated Metals	5.2	4.8	4.6	3.0	3.4
• Machinery ex. elec.	13.1	13.3	13.3	13.2	14.8
• Electrical and Electronic Machinery	14.5	15.0	15.4	16.4	18.4
• Transportation Equip.	9.4	8.6	8.4	6.0	6.0
• Instruments	7.1	7.6	7.7	8.2	8.6
• Non-Durable Goods	26.7	26.0	25.1	24.0	24.1
• Food & Kindred	3.5	3.4	3.4	3.1	3.0
• Textile Mill Products	1.1	.8	.7	.7	.8
• Apparel	3.5	3.1	2.8	2.6	2.6
• Paper & Allied Products	2.4	2.5	2.4	2.4	2.3
• Printing & Publishing	7.3	7.2	7.1	7.2	7.5
• Chemicals	2.6	2.6	2.6	2.5	2.8
• Rubber & Plastics	2.8	2.8	2.5	2.5	2.4
• Leather	1.7	1.5	1.5	1.0	1.1
Transportation, Communication & Utilities	32.4	32.0	31.0	30.5	30.2
Wholesale Trade	22.0	22.2	21.9	22.2	22.5
Retail Trade	63.0	63.9	63.3	66.0	67.4
Finance, Insurance & Real Estate	28.6	32.0	32.8	33.5	32.4
Services	113.0	120.5	121.2	124.8	128.7
• Business Services	21.5	23.1	24.5	25.6	25.4
• Health Services	31.1	33.3	34.0	35.9	36.4
• Educational Services	22.3	22.0	21.9	21.9	20.5
Government	43.9	43.9	41.8	41.8	41.4
Total	392.0	403.8	400.9	405.0	413.4

Source: Current Employment Statistics

Table 12
Nonagricultural Payroll Employment by Major Industry and Selected Two-Digit SIC Industries in Capital City: 1980-84

Industry	1980	1984
Construction	4.0	4.3
Manufacturing	22.6	20.4
• Durable Goods	9.0	7.6
• Fabricated Metals	2.9	2.7
• Machinery except electrical	1.7	1.6
• Electrical Machinery	.5	.9
• Transportation	.5	.3
• Instruments	.7	.9
• Non-Durable Goods	13.6	12.8
• Food & Kindred	2.6	2.0
• Textile	.2	.3
• Apparel	3.5	2.6
• Paper & Allied Products	.5	.4
• Printing & Publishing	4.6	4.7
• Chemicals	.6	1.0
• Rubber & Plastics	.5	.5
• Leather	.6	.5
Transportation, Communication & Utilities	16.0	14.4
Wholesale Trade	6.0	5.4
Retail Trade	18.6	18.1
Finance, Insurance & Real Estate	24.2	28.0
Service	58.1	68.8
• Business Services	8.9	13.1
• Health Services	19.3	22.0
• Educational Services	8.7	9.1
Government	26.9	23.4
Total	176.4	182.8

Source: ES-202

Table 13
Nonagricultural Payroll Employment by Major Industry and Selected Two-Digit SIC Industries in the Suburbs of Lemi County: 1980-84

Industry	1980	1984
Construction	6.6	7.9
Manufacturing	55.8	58.2
• Durable Goods	42.7	46.9
• Fabricated Metals	2.3	.7
• Machinery except electrical	11.4	12.1
• Electrical Machinery	12.8	17.5
• Transportation Equipment	8.9	5.7
• Instruments	6.4	7.7
• Non-Durable Goods	13.1	11.3
• Food & Kindred	.9	1.0
• Textiles	.9	.5
• Apparel	0	0
• Paper & Allied Products	1.9	1.9
• Printing & Publishing	2.7	2.8
• Chemicals	2.0	1.8
• Rubber & Plastics	2.3	1.9
• Leather	1.1	.6
Transportation, Communication & Utilities	16.4	15.8
Wholesale Trade	16.0	17.1
Retail Trade	44.4	49.3
Finance, Insurance & Real Estate	4.4	4.4
Services	54.9	59.9
• Business Services	12.6	14.2
• Health Services	11.8	14.4
• Educational Services	13.6	11.4
Government	17.0	18.0
Total	215.6	230.6

Source: ES-202

Table 14
Occupational Employment and Projections For Lemi County Betwen 1980 and 1990

Occupation (1)	Actual 1980 Employment (2)	Projected 1990 Employment (3)	Absolute Change in Employment 1980-1990 (4)	Relative Change 1980-1990 (in %) (5)	Annual Job Openings* (6)
Accountants	5,550	6,900	1,350	24.3	**
Bookkeepers	10,137	11,406	1,269	12.5	604
Carpenters	4,050	4,710	660	16.3	158
Cashiers	9,755	11,100	1,355	13.9	336
Cleaning Service Workers	15,380	17,580	2,200	14.3	1,147
Computer Programmers	2,350	3,460	1,110	47.3	140
Die Cutter	1,822	1,600	- 222	-12.2	-11
Electrial and Electronic Assemblers	4,080	5,060	980	24.0	130
Electrical and Electronic Technicians	3,980	5,840	1,860	46.7	222
Electrical Engineers	4,180	5,870	1,690	40.4	**
Food Preparation, Service Workers, Fast Food	3,420	5,030	1,610	47.1	296
Licensed Practical Nurse	3,560	4,280	720	20.2	270
Professional Nurse	10,230	13,300	3,070	30.0	760
Purchasing Agent	2,104	2,090	- 14	-0.7	85
Secretaries and Word Processors	15,660	19,920	4,260	27.2	1,129
Sewing Machine Operator	10,402	9,983	- 419	-4.0	171
Stenographer	3,200	3,000	- 200	6.2	80
Stitcher, Standard Machine	2,200	2,100	- 100	-4.5	- 7
Waiters and Waitresses	13,305	15,976	2,671	20.0	700
X-Ray/Radiological Technicians	2,120	2,740	620	29.3	148

* Includes openings due to growth and replacement
** Data not available.

Table 15A
Length of Training Needed for Workers in Selected High Growth Occupations

Occupation	Length of Training
Accountants	4 - 10 years
Registered Nurses	2 - 4 years
Electrical and Electronic Engineers	4 - 10 years
Electrical and Electronic Technicians	1 - 2 years
Radiological Technicians	2 - 4 years
Licensed Practical Nurses	1 - 2 years
Computer Programmers, Business	2 - 4 years
Secretaries and Word Processors	1 - 2 years
Bookkeepers and Bookkeeping Machine Operators	3 - 12 months
Cashiers	1 - 3 months
Carpenters	2 - 4 years
Electronic assemblers (electronics, semiconductors)	1 - 3 months
Fast food workers (restaurants)	1 month or less
Janitors and cleaners (commercial, industrial)	1 month or less

Source: Guide for Occupational Exploration

Table 15B
Distribution of Workers Employed in Selected High Growth Occupations by Years of Formal Educational Attainment, Lemi County: 1980

		(A)	(B)	(C)	(D)
Occupation	Number of Workers	Less than 12 Years	12 Years	13-15 Years	16+ Years
Accountants	20,100	1.2	10.0	24.0	64.7
Electrical and Electronic Engineers	9,660	0	8.5	18.4	73.1
Registered Nurses	30,120	.7	11.1	50.8	37.3
Radiologic Technicians	1,740	2.3	13.8	72.4	11.5
Licensed Practical Nurses	6,200	8.4	48.1	38.7	4.8
Electrical and Electronic Technicians	6,600	6.7	38.5	43.9	10.9
Computer Programmers	9,040	2.8	10.8	31.6	54.6
Cashiers	23,120	32.1	43.4	20.8	3.7
Secretaries	72,500	3.8	48.0	37.1	11.0
Bookkeepers	29,100	6.5	56.4	27.1	10.0
Food Service Workers	45,860	39.9	36.8	17.7	5.6
Janitors and Cleaners	24,160	46.2	40.4	10.4	3.0
Carpenters	12,480	24.4	52.7	20.1	5.8
Assemblers	22,840	40.0	48.2	8.4	3.4

Source: 1980 Census Public Use Tapes

Table 15C
Distribution of Workers Employed in Selected High Growth Occupations by Sex, Lemi County: 1980

Occupation	(A) Number of Workers	(B) Percent Male	(C) Percent Female
Accountants	20,100	71.0	29.0
Electrical and Electronic Engineers	9,660	95.2	4.8
Registered Nurses	30,120	2.5	97.5
Radiologic Technicians	1,740	19.5	80.5
Licensed Practical Nurses	6,200	4.1	95.9
Electrical and Electronic Technicians	6,600	86.1	13.9
Computer Programmers	9,040	67.0	33.0
Cashiers	23,120	21.3	78.7
Secretaries	72,500	1.1	98.9
Bookkeepers	29,100	9.8	90.2
Food Service Workers	45,860	29.7	70.3
Janitors and Cleaners	24,160	88.3	11.7
Carpenters	12,480	98.4	1.6
Assemblers	22,840	40.6	59.4
All Occupations	423,600	54.8	45.2

Source: 1980 Census

Table 15D
Distribution of Employed Workers in Selected High Growth Occupations by Racial/Ethnic Group, Lemi County: 1980

			Percent	
		(A)	(B)	(C)
Occupation	Number	White	Non-White	Hispanic
Accountants	20,100	94.9	4.2	.9
Electrical and Electronic Engineers	9,660	95.6	3.8	.6
Registered Nurses	30,120	92.2	7.1	.7
Radiologic Technicians	1,740	91.9	5.7	.3
Licensed Practical Nurses	6,200	83.3	15.2	1.5
Electrical and Electronic Technicians	6,600	89.8	9.0	1.2
Computer Programmers	9,040	93.8	4.9	1.3
Cashiers	23,120	84.0	14.2	1.8
Secretaries	72,500	90.1	9.0	.9
Bookkeepers	29,100	94.5	4.5	1.0
Food Service Workers	45,860	80.0	16.5	3.5
Janitors and Cleaners	24,160	81.1	16.0	2.9
Carpenters	12,480	92.4	7.1	.5
Assemblers	22,840	80.3	15.1	4.6
All, Occupations	423,600	86.7	11.2	2.1

Source: 1980 Census

Table 15E
Average Annual Earnings of Workers in Selected High Growth Occupations, Lemi County: 1980

		Annual Earnings	
	(A)	(B)	(C)
Occupations	All Workers	Employed Year-Round	Employed Full-time (Year-Round)
Accountants	14,780	17,212	17,682
Electrical and Electronic Engineers	24,369	26,606	26,807
Registered Nurses	11,447	13,757	15,660
Radiologic Technicians	10,302	12,510	13,557
Licensed Practical Nurses	7,280	8,834	11,175
Electrical and Electronic Technicians	13,542	15,902	16,349
Computer Programmers	14,605	17,660	18,164
Cashiers	3,597	6,063	9,653
Secretaries	8,163	10,123	11,009
Bookkeepers	7,654	9,263	10,605
Food Service Workers	3,126	5,208	7,636
Janitors and Cleaners	7,596	9,465	10,731
Carpenters	9,257	10,995	12,346
Assemblers	6,917	8,547	9,105
All Occupations	9,934	13,440	14,660

Source: 1980 Census

Table 16
Distribution of Employment by Industry for Selected High Growth Occupations in Lemi County
(In %)

Occupation	Industrial Sector	Share of Employment in Sector
Secretaries and Word Processors	Services	54.6
	• Business services	7.0
	• Educational services	19.9
	• Health services	10.0
	• Legal services	7.4
	Manufacturing	13.1
	• Machinery, except electrical	3.4
	• Instruments	2.4
	Finance, Insurance, and Real Estate	10.8
	Wholesale and Retail Trade	8.4
	Total, Above Four Sectors	86.9
Bookkeepers	Finance, Insurance, and Real Estate	33.5
	• Banking	23.3
	Wholesale and Retail Trade	29.3
	• Nondurable Wholesale Trade	10.6
	• Durable Wholesale Trade	9.9
	• Miscellaneous Retail Trade	8.1
	Services	17.3
	• Health services	12.0
	Manufacturing	12.1
	Total, Above Four Sectors	92.2
Computer Programmers	Manufacturing	38.4
	• Machinery, except electrical	17.6
	• Electrical equipment	12.3
	Services	32.5
	• Business services	18.6
	• Educational services	6.5
	• Miscellaneous services	6.0
	Finance, Insurance, and Real Estate	16.0
	• Insurance	12.7
	Wholesale and Retail Trade	7.2
	Total, Above Four Sectors	94.1
X-Ray Technicians	Health services	100.0
Electrical and Electronic Technicians	Manufacturing	58.1
	• Machinery, except electrical	16.0
	• Electrical equipment	30.8
	• Instruments	8.5
	Services	16.7
	• Business Services	9.3
	Wholesale and Retail Trade	13.9
Licensed Practical Nurse	Services	94.9
	• Health services	90.0
	• Business services	2.4
	• Social services	2.5

SOURCE: Statewide OES Industry/Occupation Matrix

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TABLE 17A
ESTIMATED AND PROJECTED EMPLOYMENT AND COMPARISON OF LABOR DEMAND WITH INSTITUTIONAL SUPPLY

Cluster Name	Occupations (Demand) Education Programs (Supply)	Employment		Estimated Annual Demand	Estimated Annual Inst. Supply	Program Graduates by Type of Institution (Training Agency)			
		Estimated 1980	Projected 1990			Secondary Schools	Public Secondary Schools Offering Adult Training	Private Post-Secondary	Community Colleges and 4 Year Universities
X-Ray Technicians and Technologists		2,120	2,740	148	80				
	Supply								
	Radiograph Medical Technology				80				80
	Demand								
	X-Ray Technican	2,120	2,740	148					

TABLE 17B
ESTIMATED AND PROJECTED EMPLOYMENT AND COMPARISON OF LABOR DEMAND WITH INSTITUTIONAL SUPPLY

Cluster Name	Occupations (Demand) Education Programs (Supply)	Employment		Estimated Annual Demand	Estimated Annual Inst. Supply	Program Graduates by Type of Institution (Training Agency)			
		Estimated 1980	Projected 1990			Secondary Schools	Public Secondary Schools Offering Adult Training	Private Post-Secondary	Community Colleges and 4 Year Universities
Bookkeeping and Related Programs		10,137	11,406	604	733				
	Supply								
	Bookkeeping and Related Programs				733	620	20	58	35
	Demand								
	Accounting Clerk	3,657	4,116	224					
	Bookkeeper, Hand	5,370	6,041	328					
	Bookeeper/Billing Machine Operator	1,110	1,249	52					

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TABLE 17C
ESTIMATED AND PROJECTED EMPLOYMENT AND COMPARISON OF LABOR DEMAND WITH INSTITUTIONAL SUPPLY

Cluster Name	Occupations (Demand) Education Programs (Supply)	Employment		Estimated Annual Demand	Estimated Annual Inst. Supply	Program Graduates by Type of Institution (Training Agency)			
		Estimated 1980	Projected 1990			Secondary Schools	Public Secondary Schools Offering Adult Training	Private Post-Secondary	Community Colleges and 4 Year Universities
Computer Programming		2,350	3,460	140			55		27
	Supply								
	Computer Programmer						55		27
	Demand								
	Computer Programmer	2,350	3,460	140					

TABLE 17D
ESTIMATED AND PROJECTED EMPLOYMENT AND COMPARISON OF LABOR DEMAND WITH INSTITUTIONAL SUPPLY

Cluster Name	Occupations (Demand) Education Programs (Supply)	Employment		Estimated Annual Demand	Estimated Annual Inst. Supply	Program Graduates by Type of Institution (Training Agency)			
		Estimated 1980	Projected 1990			Secondary Schools	Public Secondary Schools Offering Adult Training	Private Post-Secondary	Community Colleges and 4 Year Universities
Electronic Technicians/ Assemblers Cluster Total		3,980	5,840	222	136	20	35	36	45
	Supply								
	Electrical Technology				45	20	25		
	Electronic Technology				51		10	21	20
	Computer Technology		40			15	25		
	Demand								
	Electrical and Electronic Technicians	3,980	5,840	222					
Waiters/Waitresses Cluster Total		13,305	15,976	700	56	56			
	Supply								
	Waiter/Waitress				56	56			
	Demand								
	Host/Hostesses	905	1,176	30					
	Waiter/Waitress	12,400	14,800	650					

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TABLE 17E
LICENSED PRACTICAL NURSING
ESTIMATED AND PROJECTED EMPLOYMENT AND COMPARISON OF LABOR DEMAND WITH INSTITUTIONAL SUPPLY

Cluster Name	Occupations (Demand) Education Programs (Supply)	Employment		Estimated Annual Demand	Estimated Annual Inst. Supply	Program Graduates by Type of Institution (Training Agency)			
		Estimated 1989	Projected 1999			Secondary Schools	Public Secondary Schools Offering Adult Training	Private Post-Secondary	Community Colleges and 4 Year Universities
Practical Nursing Cluster Total		3,560	4,280	270	320	70	186		64
	Supply								
	Practical Nursing				320	70	186		64
	Demand								
	Licensed Practical Nurse	3,560	4,280	270					
Professional Nurses Cluster Total		10,230	13,300	760	490				490
	Supply								
	Nursing General				480				480
	Nursing other				10				10
	Demand								
	Professional Nurses	10,230	13,300	760					

TABLE 17F
ESTIMATED AND PROJECTED EMPLOYMENT AND COMPARISON OF LABOR DEMAND WITH INSTITUTIONAL SUPPLY

Cluster Name	Occupations (Demand) Education Programs (Supply)	Employment		Estimated Annual Demand	Estimated Annual Inst. Supply	Program Graduates by Type of Institution (Training Agency)			
		Estimated 1989	Projected 1999			Secondary Schools	Public Secondary Schools Offering Adult Training	Private Post-Secondary	Community Colleges and 4 Year Universities
Food Preparation/ Services Cluster Total		11,396	14,279	745	175	90	12	51	22
	Supply								
	Chef/Cook				27			27	
	Food Service				148	90	12	24	22
	Demand								
	Cook, Institutional	1,009	1,140	32					
	Cook, Restaurant	1,013	1,291	63					
	Cook, Short Order	1,200	1,410	65					
	Food Preparation/ Service/Fast Food	3,020	3,030	296					
	Kitchen Helper	3,009	3,280	186					
	All other Food Service Workers	1,293	2,178	103					
Carpenter Cluster Total		4,090	4,710	130	205	130	50	25	
	Supply								
	Carpentry				205	130	50	25	
	Demand								
	Carpenter	4,090	4,710	130					

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TABLE 17G
ESTIMATED AND PROJECTED EMPLOYMENT AND COMPARISON OF LABOR DEMAND WITH INSTITUTIONAL SUPPLY

Cluster Name	Occupations (Demand) Education Programs (Supply)	Employment		Estimated Annual Demand	Estimated Annual Inst. Supply	Program Graduates by Type of Institution (Training Agency)			
		Estimated 1980	Projected 1990			Secondary Schools	Public Secondary Schools Offering Adult Training	Private Post-Secondary	Community Colleges and 4 Year Universities
Cleaning Services Cluster Total		15,300	17,300	1,197	90	63	23		
	Supply								
	Custodial Services				90	63	23		
	Demand								
	Cleaning Service Workers Janitor, Porter and Cleaner	15,300	17,300	1,197					
Cashiers Cluster Total		9,733	11,100	336	180	150	30		
	Supply								
	Supermarket Marketing				180	150	30		
	Demand								
	Cashiers	9,733	11,100	336					

TABLE 17H
ESTIMATED AND PROJECTED EMPLOYMENT AND COMPARISON OF LABOR DEMAND WITH INSTITUTIONAL SUPPLY

Cluster Name	Occupations (Demand) Education Programs (Supply)	Employment		Estimated Annual Demand	Estimated Annual Inst. Supply	Program Graduates by Type of Institution (Training Agency)			
		Estimated 1980	Projected 1990			Secondary Schools	Public Secondary Schools Offering Adult Training	Private Post-Secondary	Community Colleges and 4 Year Universities
Secretarial and Related		18,860	22,920	1,209	1,230	930	23	171	106
	Supply								
	Secretarial and Related				1,037	930	11	65	31
	Court Reporting				6			6	
	Executive Secretary				33			18	15
	Legal Secretary				7				7
	Medical Secretary				46			33	11
	Secretary				29				29
	Stenographer				73		12	98	13
	Word Processing				19			19	
	Demand								
	Secretary	15,660	19,920	1,129					
	Stenographer	3,200	3,000	80					

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TABLE 18

Job Placement Data for Participants in Recent Vocational Education and Job Training Programs in Lemi County

	(A)	(B)
Training Program	Placement Wage	Related Placement Rates (O) (A)
Bookkeeping and Accounting	$4.75	.50
Carpentry	5.80	.20
Cashiers	4.00	.55
Cleaning Service Workers	3.90	.53
Computer Programming	6.15	.80
Custodial Services	5.50	.53
Electrical and Electronic Assembly	4.50	.71
Electrical and Electronic Technology	5.70	.75
Food Service Cluster	3.75	.58
Pratical Nursing	4.75	.80
Secretarial and Word Processing	5.20	.60
Waiters and Waitresses	3.75	.58
X-Ray Technology	4.60	.70
Average	5.00	.61

SECTION 4
CASE STUDY ANALYSIS

The data appearing in this case study are hypothetical data for the Lemi County planning area and its geographic subdivisions, Capital City and the suburbs. The labor force data and the data on the characteristics of the economically disadvantaged were derived from an analysis of the labor force and the economically disadvantaged populations residing within the Boston metropolitan area during 1980. The findings, thus, do represent the types of problems encountered by the economically disadvantaged in major metropolitan areas of the U.S. during the 1980's.

EXERCISE 1 (Tasks i, ii, iii) (Tables 1-5)

Analysis of Recent Labor Force Trends (Task i)

The first set of planning tasks involves an analysis of recent trends in aggregate labor force developments within Lemi County. Data on the size of the resident labor force, the employed, the unemployed, and the unemployment rate for the years 1980 to 1984 are presented in Table 1. Data are available for the entire labor area, i.e., Lemi County, Capital City, and the remainder of the labor area referred to as "the suburbs."

During 1980, the aggregate unemployment rate for residents of Lemi County was 7.5 %, nearly one-half of a percentage point above that of the U.S. The unemployment rate of Lemi County increased from 7.5% to 8.6% between 1980 and 1982, reflecting the economic effects of the national recession that took place between 1981 and 1982. The bottom of the national recession is estimated to have occurred in November of 1982. While the overall unemployment rate of Lemi County did rise by 1.1 percentage points between 1980 and 1982, the magnitude of the increase was less than half that of the nation as a whole (2.6 percentage points). Several different factors were responsible for this.

First, the civilian labor force of Lemi County has been growing more slowly than that of the nation as a whole. Between 1980 and 1982, the civilian labor force of Lemi County increased by 8,000 or 1.7%, while the civilian labor force of the U.S. expanded by nearly 3.1% during the same two year period. A local economy experiencing relatively low labor force growth does not have to generate as many jobs as local areas with rapid labor force growth to keep unemployment from rising. Similarly, slower growing labor areas, such as Lemi County, will experience a lower rise in overall unemployment from any given relative decline in job opportunities. Second, net job loss in Lemi County between 1981 and 1982 was quite small, with total employment declining by only .2%. In comparison, the total number of employed persons in the U.S. fell by nearly a full percentage point between these two years. In other words, Lemi County experienced only moderate employment losses during the recession, thereby keeping its unemployment rate below the national average.

The below average decline in employment in Lemi County between 1981 and 1982 was influenced by its favorable industry mix. As is noted in Table 11, the area has only a small share of its jobs tied to primary metal and auto-related manufacturing industries, each of which were severely affected by the national economic downturn of 1981-82. Lemi County has been diversifying its industrial base in recent years, adding high technology manufacturing jobs and jobs in the private services sector.

Between 1982 and 1984, Lemi County's unemployment rate fell by slightly more than two percentage points from 8.6% to 6.5%. The sharp decline in unemployment was brought about by rapid growth (4.6%) in the total number of employed persons (nearly 20,000) during the past two years. Since total employment increased at a rate double that of the civilian labor force (10,400) the number of unemployed persons fell by 9,000, reducing the overall unemployment rate in Lemi County.

Capital City and the suburban communities benefitted from the strong economic performance of Lemi County during the past two years. However, employment growth has been more rapid in the suburban communities and as a result the unemployment difference between Capital City and the suburbs widened over this two year period. The suburban unemployment rate was reduced to a greater degree than that of Capital City. Between 1982 and 1984, the number of employed persons residing in Capital City increased by 6,220 or 3.7% while employment of residents in the suburban communities expanded by 13,330 or 5.1%. As a result of the more rapid rate of growth in employment in suburban communities, the unemployment rate of these communities fell from 8.1% to 5.7% between 1982 and 1984, a decline of nearly 30% in two years. The unemployment rate of Capital City fell from 9.3% to 7.7%, a decline of 1.6 percentage points or 17% during this two-year period. The absolute and relative size of the gap between the unemployment rates of Capital City and the suburbs widened between 1982 and 1984. The relative size of the gap (Capital City Unemployment Rate ÷ Suburbs Unemployment Rate) was only 15% in 1982, but rose to 35% in 1984.

The data in Table 1 by themselves cannot be used to identify the specific causes of a widening differential in unemployment rates between the suburbs and Capital City; however, knowledge of the characteristics of the labor force of these communities and trends in industry employment growth should provide additional insights into the factors potentially responsible for these widening differentials.

Analysis of Labor Force Composition and Unemployment (Task ii)

- Labor Force Composition and Subgroup Problems

The Private Industry Council has asked the planning staff to prepare a brief report analyzing the composition of Labor Area A's labor force and identifying particular labor force problems encountered by key subgroups of the resident population.

Data on the racial/ethnic composition of the civilian labor force, the employed, and the unemployed in Lemi County are presented in Table 2. LAUS data do not provide any information on the characteristics of labor force participants in state or local labor areas. Information for Lemi County and its geographic subdivisions are available from the 1980 decennial Census. During March of 1980, there were 458,500 persons (age 16 and older) participating in the civilian labor force in Lemi County. It should be noted that this total refers to residents of the communities comprising Lemi County. These individuals may or may not be working in firms or government agencies located within Lemi County.

Slightly more than 86% of the members of the civilian labor force in Lemi County are white, non-Hispanics. Blacks and other non-whites account for an additional 11.7% of the labor force while Hispanics account for the remaining 2%.

The labor force data for Lemi County are further subdivided by geographic subdivision in Table 2. Capital City's civilian labor force consisted of 183,500 persons (age 16 and older) in March of 1980. Forty percent of the total number of civilian labor force participants in Lemi County resided in Capital City during March of 1980 while the remaining 60% lived in the suburban communities. The racial/ethnic composition of the civilian labor force of Capital City varies substantially from that of the suburbs. In Capital City, 26% of the civilian labor force is composed of racial minorities and Hispanics, with blacks and other racial minorities accounting for nearly 22%. Less than 6% of the civilian labor force of the suburban communities is composed of racial minorities and Hispanics. The labor force data in Table 2, thus, reveal quite clearly that minority groups are heavily concentrated in Capital City. While Capital City accounts for only 40% of the civilian labor force of Lemi County it is the home for 75% of black and Hispanic labor force participants. This finding will have important implications for the targeting of services and the allocation of available education and training resources to communities within Lemi County.

To obtain further insights into the labor force behavior of residents of Lemi County Tables 3A and 3B present data on the civilian labor force participation rates of various subgroups of the resident population for Capital City and the suburbs. As is true for the nation as a whole, the civilian labor force participation rates of the residents of Lemi County are strongly associated with age. The data in Table 3A reveal that for each of the racial/ethnic groups in Capital City and the suburbs participation rates rise with age until the 55 years and older group is reached. Participation rates are highest for those persons in the 25-54 age group, frequently referred to as "prime aged" workers. Participants in this age group are projected to grow most rapidly throughout the nation during the remainder of this decade.

Residents of Capital City were less likely than their counterparts in the suburbs to be participating in the civilian labor force at the time of the 1980 Census. The labor force participation rates of Capital City residents were lower than those of the suburbs for all major subgroups of the population. Such differences existed for each sex group (see Table 3B), each racial/ethnic group, and nearly all age groups. The relative size of these differences tended to be largest among younger persons (age 16-19 and ages 20-24), blacks, and Hispanics.

A variety of factors are likely responsible for existing differences between the participation behavior of Capital City and suburban residents. First, suburban residents tend to complete a greater number of years formal schooling than central city residents, and greater formal schooling tends to be associated with higher rates of labor force participation, particularly among young workers (age 16-21), older workers (age 55+ and older), and women of all age groups. Second, job growth has been more rapid in suburban communities, facilitating an expansion of labor force growth in suburban areas through the "encouragement effect." This effect tends to be particularly large for teenagers, married women, and older workers. Third, as discussed later, Capital City contains a disproportionate share of the economically disadvantaged population of Lemi County (see Tables 6B and C). The economically disadvantaged tend to have access to fewer informal sources of information about available job opportunities, a key source of information for successful job finding and a source that tends to be highly valued by employers. Fourth, to the extent that racial/ethnic discrimination occurs in the hiring process and artifically restricts employment opportunities for blacks and Hispanics, it will exert a greater impact on the labor force behavior of Capital City residents since the central city is the home for 75% of all blacks and hispanics in Lemi County.

The data on the labor force participation rates of residents of Lemi County appearing in Tables 3A and 3B portray existing differences in labor force behavior. The data cannot by themselves account for the existing differences among key subgroups of the resident population. Additional data from the 1980 Census can be used to assess the relative importance of several of the factors noted above, such as data on years of schooling completed by the resident population or data on household and family income.

While the available data seem to indicate the presence of hidden unemployment in Capital City, we cannot determine how many of the non-participants in Lemi County would be classified as discouraged workers. Knowledge of these non-participants and their barriers to active labor force participation is important for human resource program planning since increasing the labor force attachment of many of these individuals is essential to efforts aimed at combatting the income inadequacy of the economically disadvantaged in Lemi County.

- Structure of Unemployment Rates in Lemi County

Data on the level and structure of unemployment in Lemi County and its geographic subdivisions at the time of the 1980 Census are presented in Tables 2, 4A, and 4B. In March 1980, the overall unemployment rate in Lemi County was 7.6% (See Table 2). Unemployment rates varied by race/ethnic group. The unemployment rate for white, non-Hispanics was 7.0% while the unemployment rates for black, non-Hispanics and Hispanics were 11.7% and 9.9%, respectively. The unemployment rate of black, non-Hispanics was approximately 1.7* times that of whites while the Hispanic unemployment rate was 1.4* times that of whites. The existence in Lemi County of unemployment rates for Hispanics that are approximately half way between those of whites and blacks is in accord with national findings. National data also indicate that the unemployment rates of Hispanics subgroups tend to vary considerably, with Cubans tending to face the lowest unemployment rates and Puerto Ricans the highest.

Many of the same factors influencing racial/ethnic differences in labor force participation rates are believed to be influencing differing unemployment rates between racial groups. These include differences in formal educational attainment and basic skills, differential access to informal sources of information about available jobs, differences in proximity of homes to expanding job centers, and discrimination in the hiring process. The relatively high unemployment rates of minority workers in central cities have also been attributed to their concentration in jobs in the secondary labor market, which are characterized by relatively low wages, few opportunities for promotion due to truncated internal career ladders, and high rates or labor turnover. Supporters of the dual or segmented labor market interpretation of unemployment and underemployment problems argue that human resources programs should be designed to provide services to participants that will enable them to obtain access to jobs in the primary segment of the labor market.

As our previous analysis of the data on aggregate labor force developments revealed, unemployment problems are more severe in Capital City than they are in the suburban communities of Lemi County. During March of 1980, the unemployment rate of Capital City was 8.6% while that for the suburban communities was only 6.9%. Capital City's unemployment rate was 1.7 percentage points, or 25%, above that of the suburbs. An analysis of the sources of the higher unemployment rate among Central City residents reveals that somewhat more than half of the overall differential in unemployment rates is due to the concentration of blacks and Hispanics in the central city. If we compare the Capital City and Suburban unemployment rates of each racial/ethnic group, we can see that the unemployment rate of Capital City residents is 11% to 13% above that of their counterparts in the suburbs. These findings are presented in the table below:

Racial/Ethnic Group	U.Rate of Capital City as % of U.Rate of Suburbs
White, non-Hispanic	113.4
Black, non-Hispanic	111.1
Hispanic	112.2

What the above findings suggest is that improvement in the relative unemployment position of Capital City residents will be heavily dependent upon substantial reductions in the unemployment rates of blacks and Hispanics. While these two population subgroups comprise one-fourth of the civilian labor force of Capital City, they account for nearly 36% of the total number of unemployed individuals in Capital City due to their high relative rates of unemployment. As the data in Table 4A reveal, young black persons (age 16-24) experience extraordinarily high absolute and relative rates of unemployment. Programs designed to serve the employment and training needs of this labor force subgroup will play a critical role in decreasing overall black unemployment and contributing to reductions in Capital City/suburban unemployment differentials.

Data on the age/race structure of unemployment rates of Capital City and suburban residents appear in Table 4A. Unemployment rates for nearly all of the subgroups appearing in this table tend to fall with age until either the 55-64 age group (Central City) or the 65 and over age group (suburbs) is reached. The unemployment rates of teenagers in each racial/ethnic group tend to be twice as high as the overall unemployment rates for these groups and 2 to 3 times the size of unemployment rates for prime-aged workers (25-54). While unemployment rates of whites and Hispanics tend to fall sharply as the 20-24 age group is reached, similar substantial reductions do not occur for black youth in Lemi County. The transition of black youth from the youth labor market to the career labor market appears to be more troublesome and prolonged than that for white youth in this local labor market. Human resource programs aimed at facilitating such transitions into the career labor market for black youth may be able to contribute in an effective manner to the resolution of this problem.

The rise in the unemployment rates of workers as the 55-64 age group in Capital City and the 65+ age group in suburban communities are reached suggests a structural adjustment problem for unemployed older workers. Only a small fraction of unemployed older workers are unemployed new entrants or re-entrants. A substantial majority of the unemployed 55-64 year olds are job losers, and both the mean and median durations of their unemployment spells have tended to be the highest of all unemployed workers in the U.S. during recent years. The unemployed older works (age 55-64) in this local labor market may be prime candidates for dislocated worker programs while the unemployed worker (65+) is more likely to be in need of assistance in securing part-time employment to supplement Social Security and other retirement income.

Data on the structure of unemployment rates by age/sex group in Capital City and the suburbs are presented in Table 4B. Analysis of the findings reveals that women in both areas tend to experience lower rates of unemployment than men, with the primary exception being women in the 65 and older age group. The existence of lower unemployment rates for women is not out of line with recent experience in the U.S. During 1982 and 1983, the annual average unemployment rates of women have been below those of men, reflecting to a major degree the over-representation of men in the cyclically sensitive manufacturing industries and those industries, such as steel, experiencing severe structural problems as well. A proper understanding of the factors responsible for the unemployment differences between men and women in Lemi County is dependent upon knowledge of the industrial structure of the local economy, recent trends in employment by industry, and the sex distribution of employment by industry. The retail trade, finance/insurance/real estate, and private services sectors are the dominant employers of women in most local economies. If the above sectors are experiencing favorable employment growth relative to most good producing sectors, which employ predominantly adult males, then women may be less likely to be unemployed than men. Again, unemployment developments cannot be readily explained without knowledge of changes in the level and structure of employment in a local economy.

Analysis of Youth Labor Force Behavior (Task iii)

The County Commissioners and the Private Industry Council requested information on the labor force behavior and problems of youth subgroups in the Lemi County. At their request, students enrolled in post-secondary educational institutions have been excluded from the analysis. Data from the 1980 decennial Census on the labor force status of high school students, nonenrolled high school graduates, and high school dropouts in the 16-21 age group are presented in Table 5. The data are presented separately for youth in Capital City and the suburban communities of Lemi County.

The labor force participation rates of 16-21 year olds in both Capital City and the suburbs vary considerably by school enrollment and by high school graduation status. Less than half of all high school students in Lemi County were actively participating in the civilian labor force during March of 1980 while 75 to 90% of high school graduates were either employed or actively looking for work during that month.

High school dropouts experience particularly severe employment problems in comparison to high school graduates in the 16-21 age group. High school dropouts are far less likely than graduates to be actively participating in the civilian labor force, and they experience unemployment rates 2 to 3* times as high as those of high school graduates. As a result of their below average labor force participation rates and their extraordinarily high unemployment rates, high school dropouts in Lemi County are characterized by relatively low employment/population ratios. Only one-third of the high school dropouts in Capital City, and only 50% of the dropouts in suburban communities were employed at the time of the 1980 Census. Effectively combatting the employment problems of high school dropouts will likely require an expansion of existing basic skills remediation and GED programs in the area. Basic skills deficiencies of many high school dropouts throughout the nation may be quite severe and limit their access to may jobs in the economy, particularly in white-collar occupations where high school diplomas and minimum reading/writing skills are basic prerequisites for hiring.

The findings on the labor force status of 16-21 years olds appearing in Table 5 also reveal that young persons in every subgroup of Capital City are less likely than their counterparts in the suburban communities to be actively participating in the civilian labor force and more likely to be unemployed. As a result, the employment/population ratios of Capital City youth are below those of suburban youth by 16% to 34%. Employment experience in the high school years has repeatedly been found to favorably affect the school-to-work transition for those youths not going on to college. The need for in-school work programs and transition services clearly seems to be greater in Capital City than in the suburban communities. More detailed information on the labor force status of various subgroups of the high school population, including sex/race/family income breakouts, would be helpful in identifying those subgroups with the greatest need for such services.

EXERCISE 2 (TASK iv AND v)(TABLES 6-10)

Overall Analysis of Economically Disadvantaged (Task iv) and Identification of Key Target Groups (Task v)

Eligibility criteria for JTPA Title II programs require that applicants be economically disadvantaged in order to receive services under this title. Selection of appropriate target groups for the delivery of services in Lemi County should be based upon knowledge of the demographic and socioeconomic characteristics of the local economically disadvantaged population, the incidence or severity of income inadequacy problems among various subgroups of the local population, and the labor market problems of different subgroups of the economically disadvantaged population.

Given the Private Industry Council's emphasis on providing services to the heads of economically disadvantaged families and to 16-21 year old persons not enrolled in post-secondary education and training institutions, separate breakouts of the demographic/socioeconomic characteristics and labor force behavior of disadvantaged family heads and of the schooling and labor force status of economically disadvantaged 16-21 year olds are provided. The findings for economically disadvantaged family heads appear in Tables 7 and 8 while those for JTPA eligible 16-21 year olds are presented in Tables 9 and 10.

Table 6A provides data on the total numbers and characteristics of persons (age 16 and older) eligible for Title II JTPA programs in Lemi County as of March 1980. The data in column A of this table pertain to the number of persons (age 16 and older) in the civilian noninstitutional population of Lemi County in various sex, age, race/ethnic, educational attainment, and public assistance status categories. The data in Column B indicate how many persons (age 16 and older) in each of the above population subgroups were classified as economically disadvantaged as of the date of the 1980 Census. By dividing the numbers in Column B by the numbers in Column A, we can derive estimates of the incidence of being economically disadvantaged for each population subgroup. The data in the last column, Column D, provide information on the share of the total economically disadvantaged population accounted for by each of the subgroups. These data on shares of eligibles are needed to comply with the provisions of the JTPA law requiring high school dropouts and employable AFDC recipients to be served in proportion to their share of the eligible population.

Tables 6B and 6C provide similar information for Capital City and the suburban communities of the county.

An analysis of the data appearing in Table 6A yields the following findings. First, nearly 147,000 persons (age 16 and older) are technically eligible for JTPA Title II services in Lemi County. This group accounts for 20.7% of the entire civilian noninstitutional population (age 16 and older) in the county. The findings, thus, suggest that slightly more than 1 in 5 residents of Lemi County are eligible to participate in Title II JTPA programs. Not all of those eligible to participate in JTPA programs are in need of employment and training services nor will all eligibles wish to participate in such programs. For example, young economically disadvantaged adults enrolled in college or some other post-secondary education and training institution are not in need of an additional education or training service although some of these students may stand to benefit from job search assistance services. Other eligibles, such as retirees, mothers with pre-school children, and the underemployed, may not choose to avail themselves of the services provided by the local JTPA system. Nevertheless, the numbers of eligibles wishing to be serviced will typically far exceed the number of individuals that can be served with available monies. The Private Industry Council in Lemi County will be required to make difficult choices as to whom to serve with available monies.

Second, women in Lemi county are nearly one-third more likely than men to be economically disadvantaged (23.4% vs. 17.6%). This is largely attributable to the fact that women who head their own families are substantially more likely than husband-wife families to be economical disadvantaged. This will be revealed more clearly in a review of the data on economically disadvantaged family heads in Table 7. As a result of their majority status in the local population (women make-up nearly 54% of the working-age population of Lemi County) and their higher probability of being economically disadvantaged, women account for 61% of the total number of JTPA Title II eligibles in Lemi County.

The probability of being economically disadvantaged is strongly associated with age. Nearly 35% of the 16-19 year olds in the county are economically disadvantaged. This probability falls with age until we reach the 65 and over age group when it jumps sharply, reflecting low labor force attachment of elderly workers and their dependence on Supplemental Security Income to supplement their Social Security and other retirement income.

The high incidence of disadvantageness among the young is influenced to some degree by the treatment of resident college students whose own incomes are too low due to school attendance to raise them above the threshold income representing 70% of the BLS lower living standard income level for the county. This group can be eliminated from the disadvantaged totals through a simple modification of the computer program identifying JTPA eligibles. In Table 9 and 10, students attending post-secondary institutions are eliminated from the estimates of the 16-21 year old economically disadvantaged population.

The high incidence of economic disadvantageness among young persons in Lemi County is also attributable to the fact, noted in earlier tables, that they face greater barriers to active labor force participation, particularly high school dropouts and young mothers, are far more likely to be unemployed than other workers, and earn far lower hourly wages due to their limited work experience.

Teenagers account for 17% of the JTPA eligible population in Lemi County and 20-24 year olds account for an additional 20%. The JTPA law calls upon service delivery areas to provide 40% of their Title II-A training monies to 16-21 year olds. This ratio is well above that of their share of the economically disadvantaged population (more refined age breakouts reveal that 16-21 year olds account for 24% of the disadvantaged population in this area). Achieving the legislative goal of 40% clearly will require intensive recruitment of eligible youths in this county.

The older worker population (55+) accounts for a relatively high share of the disadvantaged population in Lemi County. Nearly 27% of all JTPA Title II eligibles are 55 and over, and one of every six is over the age of 65. This group has not been well served by CETA programs in previous years. Nationally, less than 3% of all participants in CETA Title II B and VII programs were 55 and over. Our earlier analysis suggested that unemployment problems among older workers (age 55-64) in Capital City were relatively high, indicating certain structural problems in their re-absorption into the local economy upon loss of their previous jobs. Many older workers, particularly those over age 62, prefer part-time employment. Attracting a greater number of older persons into the local JTPA system will likely require expanded outreach efforts, close ties to other local agencies serving the needs of older workers, and an enhanced job development and placement effort aimed at the part-time labor market.

The probability of being economically disadvantaged varies substantially by race/ethnic group in Lemi County. While only 1 of every 6 white, non-Hispanics are economically disadvantaged, nearly 42% of the black and 47% of the Hispanic populations are disadvantaged. Blacks are 2.4 times more likely than whites to be disadvantaged while Hispanics are 2.7 times more likely than whites to be encountering income inadequacy problems. While blacks, other racial minorities, and Hispanics account for only 13.5% of the county's civilian noninstitutional population (age 16 and older), they represent 27% of the county's economically disadvantaged population. In identifying target groups for the delivery of JTPA services, the Private Industry Council will need to give serious consideration to the labor market problems of the county's minority population.

The likelihood of being economically disadvantaged is also found to be closely associated with the number of years of formal schooling completed by the county's resident population. Persons who complete a greater number of years of schooling are less likely to be economically disadvantaged. For example, nearly 37% of those residents who completed 8 or fewer years of schooling were economically disadvantaged, 28% of those who completed 9-11 years of schooling were disadvantaged, and only 19% of those who graduated from high school experienced income inadequacy problems. The JTPA legislation requires service delivery areas to serve high school dropouts in proportion to their share of the eligible population. If Lemi County is to adhere to this requirement, then nearly 40% of all those served should be persons lacking a high school diploma. To improve the long-term employability of these individuals, the Private Industry Council may have to increase existing capabilities for providing basic skills remediation and GED training.

Finally, an examination of the public assistance status of the eligible population reveals that nearly 47% of all eligible persons were receiving some form of public assistance income, i.e., AFDC, general relief, or supplemental security income. The majority of these individuals were likely receiving AFDC payments; however, the number of disadvantaged in each public assistance subgroup cannot be specifically identified since the Census Public Use data lump all of them into one general category. Available data on public assistance caseloads from local welfare offices should be useful in more clearly defining the size of each of these subgroups. The total number of eligible persons receiving public assistance will not be synonymous with the number of AFDC recipients registered with the WIN program in any given JTPA planning area; thus, one cannot automatically assume that the 47% figure in Column D is the appropriate figure for use by the Private Industry Council in determining an equitable level of services to the AFDC population. The high fraction of JTPA eligibles receiving some form of public assistance income should not be down played in the target group selection process. Evidence from other data sources, including Job Service applicant records, reveals that welfare recipients comprise a substantial fraction (70% or more) of the local economically disadvantaged population seeking employment assistance through local human resource agencies.

The data in Tables 6B and 6C provide estimates of the demographic and socioeconomic characteristics of the economically disadvantaged population in Capital City and the suburbs. An examination of these data reveals that income inadequacy problems are far more severe among residents of Capital City than the suburban portions of the county. Nearly 31% of Capital City residents are eligible for JTPA services in comparison to 14 percent of the residents of the balance of county. Capital City residents are, thus, 2.25 times as likely as the residents of the balance of county to be economically disadvantaged. This relative difference is well above that of unemployment rate differences (1.35) between the two areas during 1984. This finding should have important implications for the allocation of JTPA monies to serve residents of the county. The appropriate share of monies to devote to Capital City residents will depend upon the specific criterion selected by the Private Industry Council. Use of the relative shares of the economically disadvantaged population will substantially shift the share of monies allocated to Capital City residents. The table below illustrates how the share of JTPA monies allocated to Capital City and suburbs of Lemi County will vary depending on the elements of any proposed allocation formula. Allocating training monies to Capital City on the basis of the formula emphasizing the economically disadvantaged will increase its relative share of the pool.

Element	Capital City (%)	Suburbs (%)
Civilian Labor Force (1984)	39.6	60.4
Unemployed (1984)	46.9	53.1
Economically Disadvantaged (1980)	61.2	38.8

The relationships between various demographic and socioeconomic characteristics and the incidence of being economically disadvantaged are fairly similar in both geographic areas of the county; however; for every major subgroup, with the exception of "other" racial minorities, the likelihood of being economically disadvantaged is substantially higher among Capital City residents. Problems of income inadequacy are more severe among women, the young (age 16-24), the elderly (age 65 and older), racial/ethnic minorities, and those lacking a high school diploma. Public assistance recipients account for 45 to 48% of all JTPA eligible individuals in both of these areas.

- Economically Disadvantaged Family Heads

The Private Industry Council has identified economically disadvantaged family heads as a primary target group for the delivery of JTPA services. Data on the number of such individuals and their demographic/socioeconomic characteristics are provided in Tables 7A, 7B, and 7C. The 1980 Census used the concept of a "householder" in defining the relationships of family members to one another. The use of the term "family head" actually reflects the "householder" concept of the decennial Census. In a family containing a husband and a wife, either the husband or the wife can be disadvantaged as the "householder"; i.e., the individual in whose name the housing unit is rented or owned.

At the time of the 1980 decennial Census, there were 40,300 economically disadvantaged family heads in Lemi County. This total was equivalent to approximately 19% of all family heads throughout the county. As was true for the overall working-age population, the incidence of being disadvantaged varied widely by age, sex, racial/ethnic group, and educational attainment. An analysis of the data follows. First, nearly 42% of female family heads in Lemi County experience income inadequacy problems in comparison to only 11% of male family heads. As a result of their high incidence of economic disadvantageness, female family heads account for 54% of all JTPA eligibles, despite the fact that they account for only 24% of all family heads in this area.

The likelihood of being disadvantaged varies systematically by age, with younger family heads experiencing income inadequacy problems at a rate far higher than those of all other age groups. Young family heads, however, comprise only a small fraction of all family heads in the county. Only 4.5% of all family heads were 16-24 years old. The vast majority of economically disadvantaged family heads (5 of every 8) are in the prime age group (25-54).

Minority families experience income inadequacy problems far more frequently than white families. Only 1 of every 7 white families had annual incomes below 70% of the Bureau of Labor Statistics lower living standard income level. In comparison 3 of every 7 black families and nearly 4 of every 7 Hispanic families were economically disadvantaged. Minority families in the aggregate account for more than one-third of all economically disadvantaged families in the county.

Better educated family heads are substantially less likely than their less educated peers to experience income inadequacy problems. Nearly one-third of all family heads lacking a high school diploma were economically disadvantaged while only one-fifth of the family heads completing 12 years of school experienced income inadequacy problems. Among those family heads with one or more years of post-secondary schooling, only 8% were economically disadvantaged. Targeting JTPA services upon disadvantaged family heads will require serving a relatively high number of adults lacking high school diplomas. Slightly more than 46% of all disadvantaged family heads lack a high school diploma.

Finally, the data in Table 7A reveal that public assistance recipients account for a majority of economically disadvantaged family heads in this county. Nearly 5 of every 8 disadvantaged family heads in Lemi County were receiving some form of public assistance income at the time of 1980 decennial Census. Efforts to combat income inadequacy problems of families in this county will clearly require solving the employment and earnings problems of adult public assistance recipients. This situation, it should be noted, is not radically different from that prevailing in the nation as a whole in recent years. During 1982, more than 42% of all poor families in the U.S. received some type of public assistance income (AFDC, general relief, SSI), and of all poor families with a female householder 64.4% were dependent upon some form of public assistance income.

Families in Capital City were far more likely than their counterparts in the suburbs to be disadvantaged during 1980, as reflected by data in Tables 7B and C. Nearly 31% of Capital City families had inadequate incomes in comparison to only 12% of the families in the balance of the county. Nearly 60% of all JTPA eligible family heads in the county reside in Capital City. The incidence of being disadvantaged among age, sex, and race/ethnic groups tends to follow similar patterns in both geographic areas; however, for every subgroup, the incidence of being disadvantaged is far higher in Capital City. Again, the existence of such substantial inter-area differences in the severity of income inadequacy problems has important implications for the allocation of JTPA monies to address the employment and training needs of Capital City and suburban residents.

Data on the labor force status of JTPA eligible family heads at the time of the 1980 Census in Lemi County, Capital City, and the suburbs are presented in Table 8. For comparison purposes, data on the labor force status of family heads in these areas who are not eligible for JTPA Title II services are also provided.

Less than half of all JTPA eligible family heads were actively participating in the civilian labor force at the time of the 1980 Census. Their participating rate was well below that of non-eligible family heads in the county (80.5%). When economically disadvantaged family heads did participate in the civilian labor force, they encountered an unemployment rate (15.7%) that was 3.4 times as high as that of non-eligible family heads. As a result of their relatively low degree of participation and their relatively high unemployment rate, the employment/population ratio of JTPA eligible family heads was only 40%, barely half that of non-eligible family heads (76.8%).

Similar findings hold true for Capital City and the suburbs. Participation rates of disadvantaged family heads in both areas are well below those of their non-eligible counterparts, and unemployment rates are 2.5 to 4.0* times as high as those of non-eligible family heads. JTPA eligible family heads in Capital City were less likely than their counterparts in the suburbs to be actively participating in the civilian labor force (41.9% vs. 54.0%) and were less likely to be employed (35.3% vs. 45.6%). Labor force barriers appear to be greater for disadvantaged family heads in Capital City while underemployment problems are more frequently found among suburban disadvantaged families.

More disaggregated analyses could be carried out to examine differences in the labor force behavior of different subgroups of the economically disadvantaged population. Previous research findings have indicated that a higher fraction of economically disadvantaged female family heads tend to remain outside the labor force while male family heads are more likely to be underemployed. Somewhat different types of services will be needs by disadvantaged women to remove barriers to employment such as remediation, GED training, and child support services. Successfully serving this group of eligible individuals is critical to the success of JTPA programs, given the basic mission of strengthening labor force attachment.

The income inadequacy problems of underemployed male family heads have proven to be more difficult to address in the past. Few of the participants in CETA training programs in the early 1980's were classified as underemployed at the time of their application for services. For example, only 3.2% of the participants in CETA Title II B programs were classified as underemployed. Solving the income inadequacy problems of the underemployed, eligible family head will likely require a combination of innovative approaches, including upgrading programs, job restructuring programs, and training programs offered during evening hours and weekends to serve those employed during the daytime hours.

- The Size, Characteristics, and Labor Force Problems of Disadvantaged Youth

The Private Industry Council has identified economically disadvantaged youth (age 16-21) as a second priority group for the delivery of services under its Title II JTPA programs. While making this selection, the PIC also noted that eligible youth attending post-secondary education and training institutions were to be excluded from consideration. Given the council's desire to obtain more information on the size and characteristics of the disadvantaged youth population in Lemi County and its major geographic subdivisions, Tables 9 and 10A and B provide relevant information on this target group based upon the findings of the 1980 decennial Census for Lemi County, Capital City, and the suburbs.

Data in Table 9 reveal that there were 17,340 economically disadvantaged 16-21 year olds (excluding post-secondary enrollees) residing in Lemi County at the time of the 1980 Census. These disadvantaged youths comprised approximately one-fourth of the entire 16-21 year old population of the county. The likelihood of being disadvantaged was related to schooling status. One-fifth of all non-enrolled high school graduates in the county were JTPA eligible, one-fourth of all high school students were eligible, and 46% of high school dropouts were eligible to participate in Title II activities. Of all 16-21 year old eligibles, more than half were still enrolled in high school, and the remainder were evenly divided between high school dropouts and non-enrolled high school graduates.

Youth in Capital City in each schooling subgroup were substantially more likely to be economically disadvantaged than their counterparts in the balance of county. Across all three schooling subgroups combined, Capital City youth were 2.5* times more likely to be economically disadvantaged than youth in the remainder of the county (40.8% vs. 16.2%). These findings reveal quite clearly the substantially greater income inadequacy problems of the families of inner-city youth. Serving the employment and training needs of disadvantaged youth in Lemi County will require a concentrated effort in the Capital City. Only 40% of all 16-21 year olds, exclusive of college students, live in Capital City; however, this city is the home of 62.5% of all economically disadvantaged youth in the county.

Data on the labor force status of JTPA eligible 16-21 year olds at the time of the decennial Census are presented in Table 10A while similar data for non-eligible youth appear in Table 10B. The data in these tables are presented separately for youth in each of the three schooling categories and for youth in Capital City and the suburbs.

As expected, the labor force participation rates of disadvantaged youth vary considerably by schooling status in Lemi County. Non-enrolled high school graduates have the highest participation rates and the lowest unemployment rates. Nearly 5 of every 8 non-enrolled high school graduates were actively participating in the civilian labor force in April 1980. In comparison, only one-third of the disadvantaged high school students and 45% of disadvantaged high school dropouts were participating in the civilian labor force. Disadvantaged high school dropouts also encountered extraordinarily high unemployment rates. Nearly one-half of all disadvantaged high school dropouts in the civilian labor force were unemployed at the time of the 1980 Census. The seriousness of this group's employment problems is well illustrated by its exceedingly low employment/population ratio of 23.3%. Less than one-fourth of all high school dropouts in Lemi County were employed in March 1980, a ratio less than half that of non-enrolled high school graduates (51.0%). Young, disadvantaged high school dropouts were not well served by the previous CETA youth program. Typically, less than 10% of all participants in CETA youth programs were high school dropouts. The employment problems of this group are frequently multi-dimensional in nature, including poorly developed basic academic skills, limited work experience, absence of marketable vocational skills, criminal records and child care barriers. The Private Industry Council will have to establish priorities for serving these various disadvantaged youth subgroups. The planning information appearing in these tables has identified the magnitude of the disadvantaged youth employment problem and the varying degree of severity of the problem among these youth subgroups. The final decision on targeting rests with the Private Industry Council and the County Commissioners of Lemi County. If the Congressional intent of serving high school dropouts in proportion to their share of the eligible population were to be fulfilled, no less than 24% of all youth participants in Title II A programs would be high school dropouts, and an even greater share of funds would be devoted to this group if relative unemployment of disadvantaged youth were taken into consideration in determining appropriate service levels.

EXERCISE 3 TASK vi (TABLES 11-13)

The Industrial Structure of Lemi County: Recent Industry Employment Trends

The discussions so far have focused primarily on the supply side of the labor market of Lemi County, including analyses of aggregate labor force developments, patterns of labor force participation among the resident working-age population, underutilization problems, and income inadequacy problems. Effective planning of human resource programs also requires an understanding of the structure of employment in the local planning area, trends in employment by industry and occupation, the projected employment outlook, the characteristics of occupations, and access paths to occupations, including institutional supply sources.

The Private Industry Council has asked for a description of recent trends in employment within local industries to assist it in identifying growth and declining industries. The Governor's office has also requested that available training monies from the state's 8% education and coordination grant be used to provide training in support of the expansion needs of growth industries. Data on the levels of employment by industry over the past few years would enable us to analyze the existing structure of employment by industry and identify growing and declining industries. The data appearing in Tables 11-13 are estimates of nonagricultural wage and salary employment in major industries within Lemi County during the 1980-84 period. The data represent annual averages, the employment numbers are in 1,000's of jobs, and the employment estimates pertain to the entire Lemi County.

Lemi County has experienced favorable employment growth for the 1980-84 period as a whole. The total number of wage and salary jobs increased by 21,400 or 5.5%. This growth rate is quite favorable in comparison to that for the nation as a whole during the same time period. Between 1980 and their first seven months of 1984, total wage and salary employment in the nonagricultural sector of the nation's economy increased by only 3.3%.

Wage and salary employment did not grow continuously in Lemi County during this time period. Rapid growth in employment took place between 1980 and 1981, but was followed by a loss of 2,900 jobs or .7% during the recession year of 1982. Employment growth resumed during 1983 and surpassed the pre-recession peak. During 1984, total wage and salary employment grew by 8,400 jobs or 2.1%.

Not all industrial sectors in Lemi County experienced employment growth during the past four years. The largest absolute gains in employment were registered by the services sector (+15,700), the retail trade sector (+4,400), and the finance/insurance/real estate sector (+3,800). While employment in the manufacturing sector as a whole was basically unchanged over this four-year period, the electrical and electronic machinery industry expanded its payrolls by 3,900 jobs. Several industrial sectors and two-digit SIC industries experienced employment losses between 1980 and 1984. These were non-durable manufacturing (-2,600), transportation/communications/utilities (-2,200), educational services (-1,800), and government (-2,500).

If we analyze rates of growth in employment over this period rather than absolute employment gains, the following two-digit SIC industries of groups of two-digit industries would be rated as the most rapidly growing industries:

Electrical machinery	+26.9%
Instruments	+21.1%
Business services	+18.1%
Health services	+17.0%
Construction	+15.1%
Finance/insurance/real estate	+13.2%

The differential growth rates of local industries in Lemi County have a number of profound implications for the structure of available employment opportunities. The industrial structure of the local economy is shifting toward trade, finance, and service activities and away from non-durable goods production and public sector employment. Within the durable manufacturing sector, substantial shifts are also occurring, with declines in the older export base built around fabricated metals and transportation equipment and rapid growth in the newer "high technology" industries in machinery, electrical machinery, and instruments.

These industrial shifts will alter the occupational structure of employment. The expanding services sector is a major employer of professional workers and low level service workers, but hires relatively few blue collar workers. The high technology manufacturing industries employ relatively high numbers of engineering workers and technical workers. The occupational skills mix of these industries is radically different from that of many of the declining industries, particularly in the non-durable goods manufacturing sector. These employment shifts may be accompanied by imbalances in the local labor market in a number of key occupational areas, with surpluses in semi-skilled blue collar occupations and spot shortages in rapidly growing professional, technical, and selected craft occupations. The relatively high unemployment rates of both young and older workers in Capital City may be indicative of these imbalances.

The findings presented in Tables 12 and 13 reveal that wage and salary employment grew much more rapidly in the suburbs than in Capital City between 1980 and 1984 and that the industrial composition of employment growth also varied considerably between these two areas. First, wage and salary employment increased by 15,000 or 7.0% in the suburbs between 1980 and 1984. While overall wage and salary employment also expanded in Capital City, the rate of growth (3.6%) was only half that of the suburbs.

Second, within Capital City, practically all of the net employment gains occurred in the private services sector and the finance/insurance/real estate sector. Employment declines took place in all other sectors with the exception of construction. In the suburbs, private services did contribute one-third of the net increase in employment; however, all sectors, except transportation/communications/utilities, increased their payrolls. All of the net gains in durable manufacturing and trade occurred within firms located outside of Capital City. Rapid employment growth in the suburban portions of the county was a major contributing factor to the sharper reduction in unemployment in this area of the county between 1982 and 1984.

EXERCISE 4 (TASKS vii, viii and ix) (TABLES 14-18)

The focus of Exercise 4 is on the identification of occupations that are most appropriate for training. The exercise and the accompanying analysis are rather more straight forward than that encountered in reality. The data and procedures used are simplified to allow a focus on a logical process for applying occupational information. The data used, the process followed, and the analysis of the results are likely to be more complex in the actual planning process. The case study identifies the potential uses of occupational information to narrow the focus from a large universe of occupations (from between 800-1400 occupations in a state) to those that appear to offer the best possibilities. This allows planners to direct their energy to a more detailed analysis of those that are most promising.

To demonstrate the use of occupational information in targeting occupations for training the following basic process is used. First, using occupational projections from the OES program, identify those occupations experiencing the greatest growth (both in terms of growth rates and absolute growth) and those that are growing rapidly. This does not necessarily mean a program would not provide training for any of the latter occupations, but first consideration is given to those that are growing significantly. Next, the remaining occupations are examined in terms of their required length of training and earnings expectations, identifying those that meet our requirements. In the third task, the analysis is contained by identifying those occupations that have a favorable supply/demand balance, i.e., demand in excess of the number of persons currently being trained for those occupations, and those for which existing training programs have relatively high placement rates. All of these factors are brought together to select those occupations that rate reasonably well against all of these measures.

In the analysis, the focus is narrowed from 20 occupations used in the case study to a smaller number that best meet the established criteria. The "final" list does not indicate those areas where training will necessarily be given. It simply provides a list of occupations that might be analyzed in greater detail. Also, it might be necessary to readdress some of the occupations that were not included in the list. The analysis may result in different conclusions from those raised in this presentation -- that is to be expected. There is no single correct answer. The key point, however, is that a logical application of information to identify those occupations that best meet the criteria is used.

Analysis of Occupational Employment and Opportunities (Task vii)

In Task vii, using projections from the OES program, the occupations were ranked against two criteria: (1) a ranking based on growth rates and (2) a ranking based on numeric growth, both measures were for the period 1980-1990. The results are as follows:

Rank	Occupation	Growth Rate	Rank	Occupation	Absolute Change
1	Computer Programmers	47.3	1	Secretaries/Word Proc.	4,260
2	Food Prep. Service	47.1	2	Prof. Nurses	3,070
3	Elec. Technicians	46.7	3	Waiters & Waitresses	2,671
4	Elec. Engineers	40.4	4	Cleaning Service Work.	2,200
5	Prof. Nurses	30.0	5	Elec. Technicians	1,860

Note the differences in the top five, depending on which measure is used. While both are measures of growth, occupations with the highest rate of growth will not necessarily be at the top of the list of occupations with the highest absolute growth, since the latter is a function of both the magnitude of employment in the occupation and the growth rate. For example, the growth rate for waiters and waitresses is 20 percent, which is much lower compared to the rate of computer programmers, 47.3%, yet waiters/waitresses rank third on the list in absolute growth (2,671) while programmers rank eleventh with an increase of 1,110. On the other hand, it is significant to note occupations that are very high on both lists, such as professional nurses and electrical and electronic technicians, as is the case in Lemi County. The important point is that if growth is used as one of the criteria for selecting occupations on which to focus, it is useful to use both the rate and absolute measures in making the selections.

In the case study the five occupations with the lowest growth both in terms of the rate of and absolute growth were the same and all showed a decline in employment. They were: purchasing agent, sewing machine operator, stitcher, stenographer, and die cutter. Because of the declining employment, the occupations will be dropped for the time being from the list. While there will continue to be openings in these occupations due to replacement needs, these occupations do not meet the growth criteria established by the PIC. The other 15 occupations under consideration will be kept for the time being.

Analysis of Relevance of Occupation for JTPA Training (Task viii)

In this task 15 occupations are examined in terms of the length of training required to prepare for these occupations and the earnings expectations. In the case study, the PIC has decided to focus training on programs requiring two years or less, with a bias toward programs that are of a shorter duration. In addition, one of the basic objectives is to ensure that completers of our programs earn wages in excess of 70% of the lower level living standard, which is $8,200 for Lemi County, so it is important to examine the earnings potential for these occupations.

Looking at the training length criteria first, there are 10 occupations that clearly meet the requirements; three that are border line, requiring 2-4 years of training: carpenters, computer programmers, and professional nurses; and two occupations that exceed the training time: accountants and electrical engineers. While the analysis will use all 15, the latter two are clearly not realistic possibilities for the program. Focus will be placed on the 13 that meet our standard, noting that the three requiring 2-4 years of training may need further analysis to determine whether it is realistic to prepare participants within the two year time frame.

In reviewing the earnings expectations, only two occupations do not meet the basic standard of $8,200: food preparation - service workers and waiters and waitresses. If these factors are combined, highlighting those occupations that meet both of these criteria, 11 occupations meet our standards:

Bookkeepers
Secretaries
Cashiers
Carpenters*
Professional Nurses*

Electrical/Electronic Assemblers
Electrical/Electronic Technicians
Licensed Practical Nurses
X-Ray Technicians
Cleaning Service Workers
Computer programmers*

*NOTE: This occupation requires 2-4 years of training.

Training for cashiers and cleaning service workers, 1-3 months for the former and 1 month or less for the latter, are of such a short duration that they may need further review. While the basic philosophy of the PIC is that the shorter the training time the better, occupations that require very little training should be further analyzed to determine whether the training has any real impact on placing people in these occupations or whether people applying for these positions "off-the-street" are just as likely to get such positions. In addition the preference of employers in the area concerning whether they employ people who have completed training programs in these areas and whether they favor such programs and give hiring preference to completers of the programs should be considered. There should be some real value offered by training, otherwise, even though the training period is short, the costs of such training may exceed the benefits.

Analysis of Available Occupations Supply (Task ix)

To this point, only information specific to the occupations, such as employment demand has been considered. It is crucial that the supply of trained workers available to fill positions in these occupations should be examined. While there are no measures for all sources of supply, existing institutional training can be examined to determine the match between openings (due to both growth and replacement) and training output. In addition, the placement rates of existing programs can be examined as one measure to assist in selecting occupations that merit further consideration. Such information will also help determine whether existing training programs may be used to conduct our training. This is particularly important in light of the fact that one of the strategies defined by the PIC is to maximize the use of existing training facilities and programs to the extent possible.

In the review an admittedly simple analysis of supply/demand is being used, flagging occupations according to whether there is a shortage, balance, or surplus of training. Using this approach, 10 occupations appear to have a shortage or balance (secretaries are rated as having a balance - this occupation could be included). Three occupations were clearly in surplus using this measure: bookkeepers, carpenters, and practical nurses. No information was available for accountants or electrical engineers, but the latter two are not particularly relevant for the training programs as noted previously.

In reviewing the placement rate information, five occupations exceed the average placement rate for training in Lemi County: computer programmers, electrical and electronic assemblers, electrical and electronic technicians, licensed practical nurses, and X-ray/radiological technician. In addition, there are three others that might be rated as about average (you may have rated these differently): food preparation workers, secretaries, and waiters/waitresses. Note that we do not have data on professional nurses.

When both of these criteria are combined all of the above occupations rated average or above average placement rates are maintained, except for licensed practical nursing. Secretaries is a border line case on both measures. In addition, professional nurses may be kept under consideration, but existing institutions should be contacted to see if any placement rate information is available is to determine whether existing programs are successful in placing completers.

APPENDIX B

CHAPTER ONE FOOTNOTES

1. See: Smith, Adam, The Wealth of Nations, Henry Regnery Co., Chicago, 1966. The roles of labor force participation behavior, hours of work, and labor productivity in influencing the potential output of the U.S. economy are described more fully in the following publication:

   U.S. Department of Labor, Bureau of Labor Statistics, Methodology for Projections of Industry Employment to 1990, Bulletin 2036, U.S. Government Printing Office, Washington, D.C., 1980.

2. For a review of the economic and manpower policy issues influencing the development of human capital theory and human resource research,

   See: Borus, Michael, "Assessing the Impact of Training Programs," in Employing the Unemployed, Basic Books, New York, 1980, pp. 25-40.

3. See:
   - i) Denison, Edward F., "Measuring the Contribution of Education to Economic Growth," in The Residual Factor and Economic Growth, OECD, Paris, 1964, PP. 13-55;
   - ii) Denison, Edward F., Accounting for Slower Economic Growth, The Brookings Institution, Washington, D.C., 1979;
   - iii) Freeman, R.B., "Investment in Human Capital and Knowledge," in Capital for Productivity and Jobs, pp. 96-123, The American Assembly, Columbia University, 1977;
   - iv) Kendrick, John W., Understanding Productivity, The Johns Hopkins University Press, Baltimore, Maryland 1977.

4. The health status of working-age individuals also is a significant determinant of their labor force status. For a recent review of the role of health factors in influencing the labor force participation behavior of women and older workers in the U.S.,

   See:
   - i) Ohio State University, Center for Human Resource Research, Dual Careers: A Longitudinal Study of Labor Market Experience of Women, Vol. 1, Manpower Research Monograph 21, U.S. Department of Labor, 1970;
   - ii) Maret, Elizabeth G., "How Women's Health Affects Labor Force Attachment," in Monthly Labor Review, April, 1982, pp. 56-58;
   - iii) Koyl, Leon F., "Aging Health and Work," in Policy Issues in Work and Retirement, pp. 39-56, W.E. Upjohn Institute for Employment Research, Kalamazoo, Michigan, 1983.

5. For a review of theory and empirical evidence on experience/earnings profiles of men and women,

   See:
   - i) Barrett, Nancy S., "Women in the Job Market: Occupations, Earnings, and Career Opportunities," in The Subtle Revolution, The Urban Institute, Washington, D.C., 1979, pp. 31-62;
   - ii Corcoran, Mary; Duncan, Gregory J.; Ponza, Michael; "Work Experience, Job Segregation, and Wages," Paper Prepared for the National Academy of Sciences Conference on Job Segregation by Sex, May 1982;
   - iii) Mincer, Jacob, Schooling, Experience, and Earnings, Columbia University Press, New York, 1974;
   - iv) Mincer, Jacob and Polachek, S., "Family Investments in Human Capital: Earnings of Women," Journal of Political Economy, March-April 1982, Part 2, pp. S76-108.

For a recent analysis of age/earnings profiles of workers in Japan and the impact of lifetime employment arrangements upon the curvature of the profiles,

See: Evans, Robert, "Lifetime Earnings in Japan for the Class of 1955," Monthly Labor Review, April 1984, pp. 32-36.

6. The national labor force, output, and employment projections of the Bureau of Labor Statistics for the period 1982-1995 appear in the following volume:

   U.S. Department of Labor, Bureau of Labor Statistics, Employment Projections to 1995, Bulletin 2197, U.S. Government Printing Office, Washington, D.C. 1984.

7. The 1995 national labor force projections of the Bureau of Labor Statistics appear in the following article.

   Fullerton, H.N. and Tschetter, J., "The 1995 Labor Force: A Second Look," Monthly Labor Review, November 1983, pp. 3-10.

8. For a review of the determinants of productivity growth including the role of training programs,

   See: i) Kendrick, John W., Understanding Productivity...

   ii) Levitan, Sar A. and Werneke, Diane, Productivity: Problems, Prospects and Policies...

9. For a review of recent productivity trends, problems and policies,

   See: i) Congressional Budget Office, The Productivity Problem: Alternatives for Action, U.S. Government Printing Office, Washington, D.C., 1981;

   ii) Levitan, Sar A. and Werneke, Diane, Productivity: Problems, Prospects and Policies, The Johns Hopkins University Press, Baltimore, 1984.

10. For a review of unemployment trends in the U.S. over the past decade and comparisons with other major industrial nations,

    See: Moy, Joyanna, "Labor Market Developments in the U.S. and Nine Other Countries, " Monthly Labor Review, January 1984, pp. 44-51.

11. Recent trends in the level and composition of unemployment in the U.S. are summarized in the following articles:

    i) Becker, E.H. and Bowers, N., "Employment and Unemployment Gains Widespread in 1983," Monthly Labor Review, February 1984, pp. 3-13.

    ii) Flaim, Paul O. "Unemployment in 1982: The Cost to Workers and Their Families," Monthly Labor Review, February 1984, pp. 30-37.

12. The remarks of John Jacob were quoted in the following article:

    "Jobs Central Issue on Black Agenda, Says National Urban League President," Employment and Training Reporter, Vol. 15, No. 47, August 8, 1984, pp. 1261-1262.

13. For a recent review of trends in long-term unemployment in the U.S. and alternative estimates of the number of dislocated workers,

    See: i) Rones, Philip L., "Recent Recessions Swell Ranks of the Long-Term Unemployed," Monthly Labor Review, February 1984, pp. 25-29.

ii) Saks, Daniel H., Distressed Workers in the Eighties, Committee on New American Realities, Washington, D.C., 1983;

iii) Hollenbeck, Kevin; Pratzner, Frank C.; and Rosen, Howard; Displaced Workers: Implications for Educational and Training Institutions, The National Center for Research in Vocational Education, Columbus, 1984.

iv) Podgursky, Michael, "Sources of Secular Increase in the Unemployment Rate, 1969-1982," Monthly Labor Review, July 1984, pp. 19-23.

14. See: Leontief, Wassily, Technological Advance, Economic Growth and the Distribution of Income, International Metalworkers Federation, Geneva, 1984.

15. See: Rivlin, Alice (Editor), "Adjusting to Economic Change," in Economic Choices 1984, Brookings Institution, Washington, D.C., 1984, pp. 119-156.

16. Advocates of the structural view of rising unemployment in the U.S. during the late 1950's and early 1960's emphasized the rising differentials in unemployment rates between the more highly educated and poorly educated workers.

See: Killingsworth, Charles C., "Automation, Jobs, and Manpower," in Labor and the National Economy, W.W. Norton, 1965, pp. 124-135.

17. See: Young, Anne McDougall, "More U.S. Workers are College Graduates," in Educational Attainment of Workers, March 1982-83, BLS Bulletin 2191, U.S. Government Printing Office, Washington, D.C., 1984.

18. See: i) Sum, Andrew; Harrington, Paul; and Simpson, Paul; Educational Attainment, Academic Ability and the Employability and Earnings of Young Persons: Implications for the Planning and Design of JTPA Youth Programs...

ii) Borus, Michael E., "A Description of Employed and Unemployed Youth in 1981," in Youth and the Labor Market, W.E. Upjohn Institute for Employment Research, Kalamazoo, 1984.

19. For an analysis of the influence of formal educational attainment upon the labor force participation behavior and unemployment problems of older workers,

See: i) Sum, Andrew and Doeringer, Peter, Job Markets and Human Resource Programs for Older Workers in New England, Paper prepared for New England Board of Higher Education, Boston, November 1983;

ii) Parnes, Herbert S. (Editor), Policy Issues in Work and Retirement, The W.E. Upjohn Institute for Employment Research, Kalamazoo, 1983;

iii) U.S. Department of Labor, Bureau of Labor Statistics, Educational Attainment of Workers, March 1982-83, Bulletin 2591, "Appendix B" and "Appendix C," U.S. Government Printing Office, Washington, D.C. 1984;

iv) Morrison, Malcolm H., "The Aging of the U.S Population: Human Resource Implications, " Monthly Labor Review, May 1983, pp. 13-19.

20. For a review of trends in the poverty population in the U.S. and the role of human resource programs in combatting poverty,

See: i) U.S. Department of Commerce, Bureau of the Census, Characteristics of the Population Below the Poverty Level: 1982, U.S. Government Printing Office, Washington, D.C. 1984;

ii) Rivlin, Alice M. (Editor), Economic Choices: 1984, The Brookings Institution, Washington, D.C., 1984.

21. For a review of theory and empirical findings on the relationship between formal educational attainment and earnings of workers,

See: i) Schultz, Theodore W., The Economic Value of Education, Columbia University Press, New York, 1963;

ii) Becker, Gary S., Human Capital, National Bureau of Economic Research, New York, 1964;

iii) Cohn, Elchanan, The Economics of Education, Ballinger Publishing Company, Cambridge, 1979.

22. For a review of the evidence on the declining return to investment in college education in the U.S. and other nations,

See: i) Freeman, Richard B., The Over-Educated American, Academic Press, New York, 1976;

ii) Freeman, Richard B., The Changing Economic Value of Higher Education in Developed Economies: A Report to the O.E.C.D., National Bureau of Economic Research, Working Paper No. 820, Cambridge, 1981;

iii) Rumberger, Russell W., "The Changing Economic Benefits of College Graduates," Economics of Education Review, Vol. 3, Number 1, 1984, pp. 3-11;

iv) Hoffman, Saul D., "Black-White Differences in Returns to Higher Education: Evidence from the 1970's," Economics of Education Review, Volume 3, Number 1, 1984, pp. 13-21.

23. A summary of recent findings on the employment and earnings differentials between high school graduates and dropouts appears in the following publications:

i) Sum, Andrew; Harrington, Paul; and Simpson, Paul; Educational Attainment, Academic Ability, and the Employability and Earnings of Young Persons: Implications for the Planning and Design of JTPA Youth Programs, Report Prepared for the Ford Foundation, Center for Labor Market Studies, Northeastern University, December 1983;

ii) Jobs Watch Project, Catholic University of America, Jobs Watch Alert, "Job Training Partnership Act and Dropout Youth," August 13, 1984.

24. For a review of empirical evidence on the relationships between basic skills and the employability and earnings of young adults,

See: i) Meyer, Robert H., "Job Training in the Schools," in Job Training for Youth, The National Center for Research in Vocational Education, Columbus, 1982, pp. 307-344;

ii) Sum, Andrew, Educational Attainment, Academic Ability, and the Employment and Earnings of Young Persons in the United States: Recent Trends and Findings of Recent Research, Center for Labor Market Studies, Northeastern University, Boston, September 1983;

iii) National Council on Employment Policy, Back to Basics Under JTPA, Washington, D.C., October 1983.

25. For a detailed review of empirical evidence on the impacts of secondary and post-secondary training on the employment and earnings of young adults.

See: i) Parnes, Herbert S., and Kohen, Andrew I., "Labor Market Experience of Noncollege Youth: A Longitudinal Analysis," in From School to Work: Improving the Transition, U.S. Government Printing Office, Washington, D.C, 1976;

ii) Grasso, John T. and Shea, John R., Vocational Education and Training: Impact on Youth, Carnegie Council on Policy Studies in Higher Education, Berkeley, 1979;

iii) National Commission for Employment Policy, The Federal Role in Vocational Education, Report No. 12, Washington, D.C., 1981;

iv) Gardner, John A.; Campbell, Paul; Seitz, Patricia; Influences of High School Cirriculum on Determinants of Labor Market Experiences, The National Center for Research in Vocational Education, Columbus, October, 1982;

v) Meyer, Robert H., op.cit;

vi) Daymont, Thomas N. and Rumberger, Russell, "The Impact of High School Curriculum on the Earnings and Employability of Youth," in Job Training for Youth, pp. 279-305.

26. Among Harbison's major published works in this field prior to the 1973 volume on Human Resources as the Wealth of Nations were the following:

i) Harbison, Frederick H. and Myers, Charles A., Education, Manpower, and Economic Growth: Strategies of Human Resource Development, New York, McGraw-Hill Book Company, 1964;

ii) Harbison, Frederick, H.; Maruhnic, Joan; and Resnick, Jane R., Quantitative Analyses of Modernization and Development, Princeton University, Princeton, New Jersey, 1970.

27. See: Harbison, Frederick H., Human Resources as the Wealth of Nations, Oxford University Press, New York, 1973, p.3.

28. Ibid., p. 4.

29. See: Tomkins, Calvin, Eric Hoffer: An American Odyssey, Michael Joseph Ltd., London, 1969.

30. See: Hoffer, Eric, The Temper of Our Time, Harper and Row, New York, 1967.

31. For examples of the development of such cognitive abilities and the role of the family,

See: i) Coleman, James S., Equality of Educational Opportunity, U.S. Government Printing Office, Washington, D.C., 1966;

ii) Jencks, Christopher, et.al., Inequality, A Reassessment of the Effects of Family and Schooling in America, Basic Books, New York, 1972;

iii) Hill, C.R. and Stafford, F.P., "Allocation of Time to Preschool Children and Educational Opportunity," Journal of Human Resources, Vol. 9, pps. 323-341.

32. For a review of such alternative training paths for occupations,

See: i) Goldstein, Harold M. and Horowitz, Morris A., Utilization of Health Personnel: A Five Hospital Study, Aspen Systems Corporation, Germantown, Maryland, 1978;

ii) Hills, Stephen M., "How Craftsmen Learn Their Skills: A Longitudinal Analysis," in Job Training for Youth, The National Center for Research in Vocational Education, Columbus, 1982, pp. 203-239;

iii) Marshall, Ray and Glover, Robert, Training and Entry into Union Construction, U.S. Department of Labor, Manpower Research and Development Monograph No. 34, U.S. Government Printing Office, Washington, D.C., 1975;

iv) U.S. Department of Labor, Manpower Administration, *Formal Occupational Training of Adult Workers*, U.S. Department of Labor, Manpower Research and Development Monograph No. 2, U.S. Government Printing Office, Washington, D.C., 1974.

33. For a review of the nature of apprenticeship training programs and past efforts under CETA to coordinate employment and training programs with the apprenticeship system,

See: National Governor's Association, Employment and Vocational Training Program, *CETA and Apprenticeship; A Resource Guide for Employment and Training Professionals*, Washington, D.C. 1981.

34. For an examination of the impacts of work experience on earnings and an analysis of differential impacts for different types of labor markets,

See: i) Mincer, Jacob, *Schooling, Experience, and Earnings*, National Bureau of Economic Research, New York, 1974;

ii) Bluestone, Barry, "The Determinants of Personal Earnings in the U.S.: Human Capital vs. Stratified Labor Markets," Unpublished Working Paper, Boston College, Boston, 1978;

iii) Osterman, Paul, "An Empirical Study of Labor Market Segmentation," *Industrial and Labor Relations Review*, July 1975, pp. 508-523.

35. Among the leading examples of efforts to construct such indices are the following:

i) U.S. Department of Labor, *Manpower Report to the President, 1967*, U.S. Government Printing Office, Washington, D.C.,1967;

ii) Miller, Herman P., "Subemployment in Poverty Areas of Large U.S. Cities," *Monthly Labor Review*, October 1973, pp. 10-17;

iii) Levitan, Sar A. and Taggart, Robert III, *Employment and Earnings Inadequacy: A New Social Indicator*, The Johns Hopkins University Press, Baltimore, 1974;

iv) Sullivan, Teresa A. and Hauser, Philip M.; "The Labor Utilization Framework Assumptions, Data, and Policy Implications," in *Concepts and Data needs*, pp. 246-271.

v) Taggart, Robert, *Hardship: The Welfare Consequences of Labor Market Problems*, W.E. Upjohn Institute for Employment Research, Kalamazoo, 1982.

36. For a review of recent evidence on the importance of basic skills and mental ability on schooling, employment, and earnings experiences of American youth,

See: i) Sum, Andrew, *Educational Attainment, Academic Ability and the Employment and Earnings of Young Persons in the United States: Recent Trends and Findings of Recent Research*, A Report Prepared for the National Council on Employment Policy, September 1983;

ii) Sum, Andrew; Harrington, Paul; and Simpson, Paul;*Educational Attainment, Academic Ability, and the Employability and Earnings of Young Persons: Implications for the Planning and Design of JTPA Youth Programs*, Report Prepared for the Ford Foundation, New York, 1983.

37. A similar classification of labor market problems appears in the following volumes:

i) Levitan, Sar A; Mangum, Garth L.; and Marshall, Ray; *Human Resources and Labor Markets*, Second Edition, Harper and Row, New York, 1976;

ii) Schiller, Bradley R., *The Economics of Poverty and Discrimination*, Fourth Edition, Prentice Hall Inc., Englewood Cliffs, N.J., 1984.

38. This view also has been expressed by Janet Norwood, the current Commissioner of the Bureau of Labor Statistics.

See: Norwood, Janet L., *Some Social Aspects of Unemployment*, Report 469, U.S. Department of Labor, Bureau of Labor Statistics, June 1976.

39. For a review of the issues involved in measuring hidden unemployment and a discussion of conceptual differences between the hidden unemployed and the discouraged,

See: i) Finegan, T. Aldrich, *The Measurement, Behavior, and Classification of Discouraged Workers*, Background Paper No. 12, National Commission on Employment and Unemployment Statistics, Washington, D.C., 1978;

ii) Flaim, Paul O., "Discouraged Workers and Changes in Unemployment," *Monthly Labor Review*, March 1973, pp. 8-16;

iii) Gastwirth, Joseph L., "Estimating the Number of 'Hidden Unemployed', " *Monthly Labor Review*, March 1973, pp. 17-26;

iv) Mincer, Jacob, "Determining Who Are the Hidden Unemployed," *Monthly Labor Review*, March 1973; pp. 27-30

v) Flaim, Paul O., "Discouraged Workers: How Strong Are Links to Job Market,?" *Monthly Labor Review*, August 1984, pp. 8-11.

40. For a review of labor hoarding in the United States and the United Kingdom,

See: i) Taylor, Jim, *Unemployment and Wage Inflation with Special Reference to Britain and the U.S.A.*, Longman Group Limited, Essex, 1974;

ii) Okun, Arthur M., *Prices and Quantities: A Macro-economic Analysis*, Brookings Institution, Washington, D.C., 1981;

iii) Stern, David, *Managing Human Resources: The Art of Full Employment*, Auburn House Publishing Company, Boston, 1982.

41. For a recent comparison of U.S.-Japanese unemployment differences and the role of labor hoarding in Japanese industries,

See: Sorrention, Constance, "Japan's Low Unemployment, An In-Depth Analysis," *Monthly Labor Review*, March 1984, pp. 18-27.

42. For example, in its final report to the President, the Gordon Committee defined the concept of "underemployment" in the following manner:

> "...employment of persons at jobs that call for less than their highest level of skill and at wages less than those to which their skills, if fully utilized, would normally entitle them."

See: President's Committee to Appraise Employment and Unemployment Statistics, *Measuring Employment and Unemployment*, U.S. Government Printing Office, Washington, D.C., 1962.

43. *See*: 95th U.S. Congress, *Public Law 95-524: Comprehensive Employment and Training Act Amendments of 1978*.

44. Underemployment problems are frequently viewed as far more serious than open unemployment in most developing nations of the world.

See: i) Harbison, Frederick H., *Human Resources as the Wealth of Nations*, pp. 19-51.

ii) Myrdal, Gunnar, Asian Drama: An Inquiry into the Poverty of Nations, Vol. III, Pantheon Books, New York, pp. 2041-2063, 2203-2224.

A review of alternative approaches to measuring underemployment in developing nations appears in the following publication: Squire, Lyn, Employment Policy in Developing Countries: A Survey of Issues and Evidence, Oxfored University Press, New York, 1981.

45. A number of employment and training programs have been designed in part to keep economically disadvantaged youths in high school. Among such programs are the Summer Youth Employment Program (SYEP) and the recently-completed national demonstration job guarantee program known as the Entitlement Program. For a review of the impacts of these programs,

See: i) A.L. Nellum and Associates, Impacts of SYEP Participation on Work-Related Behavior and Attitudes of Disadvantaged Youth, Final Report Submitted to Office of Youth Programs, U.S. Department of Labor, Washington, D.C. 1980;

ii) Gueron, Judith M., Lessons from a Job Guarantee: The Youth Incentive Entitlement Pilot Projects, Manpower Demonstration Research Corporation, New York, 1984.

46. For a recent review of efforts to create effective learning environments in schools and to boost basic skills of disadvantaged youth,

See: i) Cuban, Larry, "Transforming the Frog into a Prince: Effective Schools Research, Policy, and Practice at the District Level," Harvard Educational Review, Volume 54, Number 2, 1984;

ii) Berlin, Gordon, Remediation for the Disadvantaged, Report Prepared for the National Council on Employment Policy, Washington, D.C., September 1983.

47. For a review of current issues facing the vocational education system today,

i) Taylor, Robert E.; Rosen, Howard; and Pratzner, Frank C., (Editors); Job Training for Youth, The National Center for Research in Vocational Education, Columbus, 1982;

ii) Greenwood, Katy B., (Eldon) Contemporary Challenges for Vocational Education, American Vocational Association, Arlington, 1981.

48. For a review of the literature on occupational information and world of work knowledges of youth and their impacts on post-high school employability and earnings,

See: i) Barton, Paul E., and Frazer, Bryna Shore, Between Two Worlds-Youth Transition from School to Work, Youth Knowledge Development Report 2.3, U.S. Government Printing Office, Washington, D.C., 1980;

ii) Sum, Andrew; Harrington, Paul, Simpson, Paul; Educational Attainment, Academic Ability...

49. For a more detailed analysis of the rationale for and nature of alternative human resource strategies for combatting under-utilization problems,

See: i) Harbison, Frederick H.; Human Resources as the Wealth of Nations, pp. 52-99;

ii) Sum, Andrew, et.al., Evaluating the Performance of Employment and Training Programs at the Local Level, Vol. II, Employment and Training Administration, Boston, pp. 26-37;

iii) Mangum, Garth, et.al., Job Market Futurity: Planning and Managing Local Manpower Programs, Olympus Publishing Company, Salt Lake City, 1979.

50. Lester, Richard A., *Manpower Planning in a Free Society*, Princeton University Press, Princeton, 1966, p.5.

51. For a review of the role and effectiveness of the local labor exchange operations of the Employment Service and other labor market intermediaries,

See: i) National Commission for Manpower Policy, *Labor Market Intermediaries*, Special Report No. 22, Washington, D.C., March 1978;

ii) Camil Associates, *Recruitment, Job Search, and the United States Employment Service*, R & D Monograph 43, U.S. Government Printing Office, Washington, D.C., 1976.

52. The case for job search assistance programs is forcefully argued in the following article:

Wegman, Robert G., "Job-Search Assistance: A Review," *Journal of Employment Counseling*, Volume 16, No. 4, December 1979.

Alternative models of job search training are described in detail in the following volume:

Johnson, Miriam, *The State of the Art in Job Search Training*, Olympus Research Centers, Salt Lake City, 1982.

Findings of the effectiveness of job search training programs for youths, public assistance applicants, and dislocated workers appear in the following publications:

i) Hahn, Andrew and Friedman, Barry, *The Effectiveness of Two Job Search Assistance Programs for Disadvantaged Youth*, Report Submitted to the Office of Youth Programs, U.S. Department of Labor, Washington, D.C., 1981;

ii) Johnson, Miriam and Roberts, David, *Getting Youth on the Job Track*, Olympus Research Centers, Salt Lake city, 1982;

iii) Goldman, Barbara S., *Impacts of the Immediate Job Search Assistance Experiment*, Manpower Demonstration Research Corporation, New York, June 1981;

iv) Smith, D. Alton; Kulik, Jan; Stromsdorfer, Ernst W; "The Economic Impact of the Downriver Community Conference Economic Readjustment Activity Program: Choosing Between Retraining and Job Search Placement Strategies," in *Displaced Workers: Implications for Educational and Training Institutions*, The National Center for Research in Vocational Education, Columbus, 1984.

53. For a comprehensive review of the nature and effectiveness of alternative training programs for the unemployed and the economically disadvantaged,

See: Taggart, Robert, *A Fisherman's Guide: An Assessment of Training and Remediation Strategies*, The W.E. Upjohn Institute for Employment Research, Kalamazoo, 1981.

54. For a review of past federal efforts to support economic development of economically depressed communities and regions throughout the nation,

See: i) Levitan, Sar A., *Federal Aid to Depressed Areas*, The Johns Hopkins Press, Baltimore, 1964;

ii) Sundquist, James L. and Mields, Hugh, "Regional Growth Policy in the United States," in *Balanced National Growth*, (Ed. Kevin Allen), Lexington Books, Lexington, Mass. 1979;

iii) Rothblatt, Donald N., *Regional Planning: The Appalachian Experience*, Heath Lexington Books, Lexington, Mass. 1971;

iv) Levitan, Sar A. and Zickler, Joyce K., Too Little But Not Too Late: Federal Aid to Lagging Areas, Lexington Books, Lexington, Mass., 1976;

v) Martin, Curtis H. and Leone, Robert A., Local Economic Development, D.C. Heath and Company, Lexington, Mass. 1977.

55. A number of demonstration programs to improve linkages between local economic development activities and employment and training programs were administered throughout the nation during the past few years. A review of the nature and impacts of these demonstration programs appears in the following publications:

i) Van Horn, Carl et.al., An Evaluation of the Targeted Jobs Demonstration Program, Rutgers University, New Brunswick, 1983;

ii) Van Horn, Carl, et.al., Economic Development Projects and Jobs: Lessons from the Targeted Jobs Demonstration Program, Rutgers University, New Brunswick, New Jersey, 1983.

56. For a review of the goals, design, and impacts of public service employment programs in the U.S. during the 1970's,

See: i) Taggart, Robert (Editor), Job Creation: What Works?, Olympus, Salt Lake City, 1977;

ii) Mirengoff, William; Rindler, Lester; and Greenspam, Harry; Expanding Public Service Employment Under CETA: Preliminary Assessments, National Academy of Sciences, Washington, D.C., 1978;

iii) Mirengoff, William, et.al., CETA Assessment of Public Service Employment Programs, National Academy of Sciences, Washington, D.C., 1979;

iv) Mirengoff, William, et. al., The New CETA: Effect on Public Service Employment Programs, A Preliminary Report, National Academy of Sciences, Washington, D.C., September, 1979.

57. For a review of findings on the operations and impacts of work experience programs for youths and adults,

See: i) Mangum, Garth and Walsh, John, Employment and Training Programs for Youth-What Works Best for Whom?, Youth Knowledge Development Report, U.S. Government Printing Office, Washington, D.C., 1980;

ii) Taggart, Robert, A Fisherman's Guide...

iii) Sum, Andrew; Harrington, Paul; and Simpson, Paul; Summer Jobs Programs for Economically Disadvantaged Youths: Their Size, Operations, and Impacts Upon Participants, Center for Labor Market Studies, Northeastern University, Boston, 1983.

58. For a review ofthe impacts of CETA work experience programs on adult earnings,

See: Bloom, Howard and McLaughlin, Maureen, CETA Training Programs: Do They Wirl for Adults?, Congressional Budget Office, Washington, D.C., 1982.

59. For a review of the purposes and nature of the Supported Work Demonstration programs and their benefits and costs,

See: i) Gueron, Judith, "The Supported Work Experiment" Employing the Unemployed, Basic Books, Inc., New York, 1980, pp.73-93;

ii) Kemper, Peter; Long, David A.; and Thornton, Craig; The Supported Work Evaluation: Final Benefit-Cost Analysis, Mathematica Policy Research, Inc., Princeton, N.J., October 1979.

60. The case for and against a national industrial policy for strengthening basic industries in the U.S. appears in the following publications:

See: i) Magaziner, Ira C. and Reich, Robert B., Minding America's Business, Vintage Books, New York, 1982;

ii) Gilder, George, "A Supply-Side Economics of the Left", in The Public Interest, Number 72, Summer 1983;

iii) Johnson, Chalmers (Editor), The Industrial Policy Debate, Institute for Contemporary Studies, San Francisco, California, 1984.

A review of European and Japanese industrial policies appears in the following two publications:

See: i) National Commission for Manpower Policy, European Labor Market Policies, Special Report Number 27, Washington, D.C., 1978;

ii) Johnson, Chalmers (Editor), op.cit.

61. The case for job restructuring policies to combat problems of underemployment associated with a polarized job structure has been recently argued by Barry Bluestone.

See: Bluestone, Barry, "Industrial Dislocation and Its Implications for Public Policy," Displaced Workers: Implications for Educational and Training Institutions, pp. 45-68.

62. For a review of the nature, design, and operations of New Careers programs,

See: i) Cohen, Robert, " New Careers" Grows Older: A Perspective on the Paraprofessional Experience, 1965-1975, The Johns Hopkins University Press, Baltimore, 1976;

ii) Haskell, Mark A., The New Careers Concept, Frederick A. Praeger, New York, 1969.

63. For a review of previous private sector efforts and CETA-funded programs to enrich the content of jobs and upgrade workers confined to low skilled jobs,

See: i) E.F. Shelley and Company, Upgrading the Workforce, E. F. Shelley and Company, Inc., N.Y. and Washington, D.C., 1971;

ii) U.S. Department of Labor, Employment and Training Administration, A Survey of CETA Upgrading and Retraining Programs, Washington, D.C., 1980;

iii) National Center for Productivity and Quality of Working Life, Improving productivity, Washington, D.C., 1975.

64. See: Katzell, Raymond A.; Bienstock, Penny; and Faerstein, Paul; A Guide to Worker Productivity Experiments in the U.S., 1971-1975, Work in America Institute, Scarsdale, N.Y., 1977.

65. For a review of the origins, nature, and structure of internal labor markets,

See: i) Doeringer, Peter B. and Piore, Michael J., Internal Labor Markets and Manpower Analysis, D.C. Heath, Lexington, 1971;

ii) Osterman, Paul, Internal Labor Markets, MIT Press, Cambridge, 1984.

A number of different efforts to upgrade workers by changing the structure of internal labor markets and improving access to ports of entry are described in the following volumes:

- i) Doeringer, Peter B. (Editor), Programs to Employ the Disadvantaged, Prentice-Hall, Inc., Englewood Cliffs, New Jersey;
- ii) U.S. Department of Labor, Manpower Administration, Upgrading-Problems and Potentialities: The R & D Experience, Manpower R & D Monograph 40, U.S. Government Printing Office, Washington, D.C., 1975;
- iii) Goldstein, Harold M. and Horowitz, Morris, Utilization of Health Personnel: A Five Hospital Study, Aspen Systems Corporation, Germantown, 1978.

66. For a review of the effects of MDTA and CETA training programs in increasing labor force attachment of participants,

See:
- i) Mangum, Garth L. and Robson, R. Thayne, (Editors) Metropolitan Impact of Manpower Programs: A Four-City Comparison, Olympus Publishing Company, Salt Lake City, 1973;
- ii) Mangum, Garth L. and Walsh, John, A Decade of Manpower and Training, Olympus Publishing Company, Salt Lake City, 1973;
- iii) Taggart, Robert III, A Fisherman's Guide...
- iv) Bloom, Howard S. and McLaughlin, Maureen A., CETA Training Programs-Do They Work for Adults?, Congressional Budget Office and the National Commission for Employment Policy, Washington, D.C., 1982.

67. For a discussion of the potential displacement effects of job training and placement programs and their impacts on the distribution of jobs and incomes,

See:
- i) Sum, Andrew, et.al., Evaluating the Performance of Employment and Training Programs at the Local Level, Volume 2 , pp. 35-37, 257-266;
- ii) Tussing, A. Dale, Poverty in a Dual Economy, St. Martins Press, New York, 1975;
- iii) Thurow, Lester, "Manpower Programs as Income Redistribution," Employing the Unemployed, Basic Books, New York, 1980, pp. 94-109.

68. A comparison of private and public sector planning activities appears in the following article:

Weidenbaum, Murray, and Rockwood, Linda, "Corporate Planning versus Government Planning," The Public Interest, Number 46, Winter 1977, pp. 59-72.

69. This quotation of Edward Banfield's appears in the following volume on urban planning:

Rabinovitz, Francine F., City Politics and Planning, Atherton Press, New York, 1969.

70. For a review of strategic and tactical planning concepts in the private and public sectors,

See:
- i) Walker, James W., Human Resource Planning, McGraw-Hill Book Company, New York, 1980;
- ii) Andrews, Kenneth, The Concept of Corporate Strategy, Dow-Jones-Irwin, Homewood, Illinois, 1980;

iii) Mangum, Garth, et.al., Job Market Futurity: Planning and Managing Local Manpower Programs, Olympus Publishing Company, Salt Lake City, 1979;

iv) U.S. Department of Labor, Employment and Training Administration, Division of Labor Market Information, Labor Market Information and CETA Planning, Third Edition, Washington, D.C., 1981.

71. For a more detailed discussion of the desired relationships between policy and theory,

See: i) Pressman, Jeffrey L. and Wildavsky, Aaron, Implementation, Second Edition, University of California Press, Berkeley, 1979;

ii) Stokey, Edith and Zeckhauser, Richard, A Primer for Policy Analysis, W.W. Norton and Co, New York, 1978.

72. See: Drucker, Peter F., "Long-Range Planning Means Risk-Taking," in Long-Range Planning for Management, (Editor: David W. Ewing), Harper and Row, New York, 1972, pp. 3-19.

73. A more comprehensive discussion of the nature of the planning tasks associated with JTPA-type programs and the interrelationships among them can be found in the following volume:

Sum, Andrew, et.al., Evaluating the Performance of Employment and Training Programs at the Local Level, Volume II: The Use of Process, Outcome and Benefit-Cost Evaluation Techniques, Employment and Training Administration, Boston, 1978.

74. See: A.L. Nellum and Associates, The CETA Planning Cycle: A Basis for Organizational Design, Prepared for Philadelphia Office of Employment and Training, 1981.

75. See: Ewing, David W., Long-Range Planning for Management, Harper and Row, New York, 1972.

76. Estimates of such effect do require the use of impact evaluations. Net impact evaluations do require the use of comparison or control groups to estimate the independent contribution of human resource programs to improvements in the employability and earnings of participants.

See: Borus, Michael E., Measuring the Impact of Employment-Related Social Programs, The W.E. Upjohn Institute for Employment Research, Kalamazoo, April 1979.

77. See: Ripley, Randall B., Areawide Planning in CETA, Employment and Training Administration, R & D Monograph 74, U.S. Government Printing Office, Washington, D.C., 1979.

78. See: i) McKinney, Floyd L.; Franchak, Stephen J.; Halasz, Ida M., and Morris, Irene; Factors Relating to the Job Placement of Former Secondary Vocational Education Students, Report Prepared for the U.S. Department of Education, Office of Vocational and Adult Education, 1982;

ii) McKinney, Floyd L.; Franchak, Steven J.; Halasz, Ida M.; Morrison, Irene; and Fornash, Patricia; Factors Relating to the Job Placement of Former Post-secondary Vocational Education Students, Report Prepared for the U.S. Department of Education, Office of Vocational and Adult Education, 1982.

79. In these two studies, the training-related placement rate was defined as the number of students obtaining employment in a position related to their field of training as a percent of the total number of students available for placement. For a summary of the major findings of these two studies,

See: The National Center for Research in Vocational Education, Facts and Findings, Spring 1983, Volume 1, Number. 2.

80. For a review of major legislative developments influencing labor market and occupational information systems,

See: Sum, Andrew; Sawhney, P.K.; and Mazzeo, Katherine; An Introduction to the Role of Occupational Information Systems, Report prepared for Commonwealth of Massachusetts, Division of Employment Security, Occupation/Industry Research Department, Boston, 1978.

81. See: Jennings, Jack, "Origins of and Congressional Intentions Surrounding the Creation of the National Occupational Information Coordinating Committee," Paper presented to the Joint National Labor Market Information Workshop of State Vocational Educators and Employment Security Personnel, St. Louis, Missouri, February, 1977.

82. See: i) 93rd U.S. Congress, Public Law 93-203, The Comprehensive Employment and Training Act of 1973, Washington, D.C., 1973;

ii) 95th U.S. Congress, Public Law 95-524: Comprehensive Employment and Training Act Amendments of 1978, 1978;

iii) 97th U.S. Congress, Public Law 97-300, Job Training Partnership Act of 1982, 1982.

83. See: 94th U.S. Congress, Public Law 94-482: The Education Amendments of 1976, Washington D.C., October 1976.

84. For a systematic review of the nature and structure of occupational information systems,

See: National Occupational Information Coordinating Committee, Occupational Information System (OIS) Handbook, Volume 1, Occupational Information Development and Volume 2, Occupational Information Analysis, Presentation and Delivery, Washington, D.C., 1981.

85. The case for improved production and dissemination of of labor market information and changes in the structure of the education and training activities preparing individuals for such jobs is argued in the following publications:

i) Rawlins, V. Lane, "An Overview of Local Coordination and Linking Efforts Among Employment and Training Programs," Paper Presented to Second Annual Policy Forum on Employability Development, sponsored by National Center for Research in Vocational Education, Ohio State University, 1982;

ii) Lynton, Ernest A., A Role for the States: Developing a Human Resource Information System, Paper Prepared for the New England Board of Higher Education, Boston, November, 1983;

iii) Taylor, Robert; Rosen, Howard; and Pratzner, Frank, C., "Summary of Policy Recommendations," in Job Training for Youth, National Center for Research in Vocational Education, Columbus, 1982, pp. 7-14.

86. See: i) Drewes, D.W. and Katz, D.S., Manpower Data and Vocational Education, A National Study of Availability and Use, Center for Occupational Education, Raleigh, 1975;

ii) Dunham, D.B., Information Needs of State Level Decision Makers in Vocational Education or "Data Do Not Equal Information," The National Center for Research in Vocational Education, The Ohio State University, 1978;

iii) Franchak, Stephen J., Factors Influencing Vocational Education Program Decisions, Paper Presented to Forum on Responsiveness to Changing Labor Market Demands, Washington, D.C., September 1982;

iv) Stevens, David W. The States' Human Resource Development Role in Response to Potential Employment Growth and Emerging Occupations, Paper Presented to Forum on

Responsiveness to Changing Labor Market Demands, Washington, D.C., September 1982.

87. For a review of the uses of occupational information in career guidance and exploration activities,

    See: Harrington, Thomas F. and O'Shea, Arthur J., Guide for Occupational Exploration, Second Edition, American Guidance Service, Circle Pines, Minnesota, 1983.

88. See: i) National Occupational Information Coordinating Committee, Occupational Information System (OIS) Handbook, Volume I, Occupational Information Development and Volume II, Occupational Information Analysis, Presentation and Delivery, Washington, D.C., 1981;

    ii) National Occupational Information Coordinating Committee, Classification Structures for Career Information, Occupational Characteristics, Volume II, Washington, D.C., 1981.

89. For a review of research findings on the impacts of world of work knowledges upon the employment and earnings experiences of young adults,

    See: Sum, Andrew and Harrington, Paul, Educational Attainment, Academic Ability, and the Employability and Earnings of Young Persons: Implications for the Planning and Design of JTPA Youth Programs, Center for Labor Market Studies, Northeastern University, Boston, December, 1983.

90. A detailed review of the purposes, design, and features of alternative job search training programs can be found in the following publication:

    Johnson, Miriam, The State of the Art in Job Search Training, Olympus Research Centers, Salt Lake City, 1982.

91. Among the resource guides available for such uses is the following:

    California Employment Development Department, Employment Data and Research, How to Develop and Use Labor Market Information in Local Occupational Program Planning, Supplement 1, Standard Industrial Classification to Yellow Page Listings, Sacramento, March 1983.

92. See: Sum, Andrew and Mazzeo, Katherine, Job Development Resource Guides for the Employment and Training System, Volumes 1 and 2, Massachusetts Department of Manpower Development, Boston, 1979.

93. For a review of the issues involved in using such data files and the findings of several followup studies based on such data,

    See: i) Stevens, David, "Performance Measurement in the CETA System", in CETA: An Analysis of the Issues, National Commission for Manpower Policy, Special Report No.23, U.S. Government Printing Office, Washington, D.C., May 1978;

    ii) National Governors' Association, Center for Policy Research, JTPA Followup: A Decision Makers Guide to the Issues, Washington, D.C., 1983;

    iii) Morton, J.B., The Feasibility of Collecting Labor Market Supply Data from Existing Records, Oklahoma State Occupational Information Coordinating Committee, Stillwater, Oklahoma, June 1981;

    iv) MDC, Unemployment Insurance Data: A Study of Their Utility for Follow-Up of CETA Participants in Balance-of-State North Carolina, Final Report, Submitted to the North Carolina Employment Security Commission, November 1980.

94. See: Mangum, Garth L., "CETA as a 'Second Chance' System for Disadvantaged Youth," Job Training for Youth, (Editors: Robert E. Taylor, Howard Rosen, and Frank C. Pratzner), The National Center for Research in Vocational Education, The Ohio State University, Columbus, 1982, pp. 103-157.

95. Among the more recent studies analyzing the impact of vocational training upon the unemployment experiences of high school graduates in the early school leaving years are the following:

- i) National Institute of Education, Vocational Education Study: An Interim Report, Washington, D.C., 1980.
- ii) Daymont, Thomas N. and Rumberger, Russell, op.cit., pp. 286-299;
- iii) Gardner, John A; Campbell, Paul; Seitz, Patricia; Influences of High School Curriculum on Determinants of Labor Market Experiences...

96. Among recent studies examining the unemployment reduction impacts of job training and school-to-work transition programs are the following:

- i) Moeller, Charles, et. al., The Lasting Impacts of Job Corps Participation, Youth Knowledge Development Report 3.5, U.S. Government Printing Office, Washington, D.C, 1980;
- ii) Sum, Andrew, The Short-Run Employment and Earnings Impacts of Participation in Jobs for America's Graduates Programs, Report prepared for Jobs for America's Graduates, Washington, D.C., 1983,
- iii) Bloom, Howard and McLaughlin, Maureen, CETA Training Programs: Do They Work for Adults? Congressional Budget Office and National Commission for Employment Policy, Washington, D.C., 1982.

97. For a review of empirical research on the employment and earnings impacts of CETA training programs,

See:
- i) Levitan, Sar A. and Mangum, Garth L. (Editors) The T in CETA: Local and National Perspectives, The W.E. Upjohn Institute for Employment Research, Kalamazoo, 1981;
- ii) Taggart, Robert, A Fisherman's Guide: An Assessment of Training and Remediation Strategies, The W.E. Upjohn Institute for Employment Research, Kalamazoo, 1981;
- iii) Bloom, Howard S., and McLaughlin, Maureen A., CETA Training Programs-Do They Work for Adults? Congressional Budget Office and National Commission for Employment Policy, Washington, D.C., July 1982.

98. A summary of these findings appears in the following volumes:

- i) Taggart, Robert, A Fisherman's Guide..., pp. 110-115;
- ii) Westat, Inc., Impact on 1977 Earning of New FY 1976 CETA Enrollees in Selected Program Activities, Report prepared for Office of Policy, Evaluation and Research, Employment and Training Administration, U.S. Department of Labor, December 1980.

99. See: Mangum, Garth and Walsh, John, A Decade of Manpower Development and Training, Olympus Publishing Co., Salt Lake City, 1973.

100. See:
- i) Daymont, Thomas N and Rumberger, Russell, "The Impact of High School Curriculum on the Earnings and Employability of Youth," in Job Training for Youth, The National Center for Research in Vocational Education, Columbus, 1982, pp.279-305;
- ii) Rumberger, Russell W. and Daymont, Thomas N., "The Economic Value of Academic and Vocational Training Acquired in High School," Youth and the Labor Market, The W.E. Upjohn Institute for Employment Research, Kalamazoo, 1984, pp. 157-191.

In a similar study based upon the findings of the 1979 and 1980 National Longitudinal Survey, Campbell et. al. found that training-related placements tended to be positively associated with higher hourly and weekly wages; however, the size of the estimated effects tended to fall somewhat short of statistical significance.

See: Campbell, Paul B.; Gardner, John; et.al. Employment Experiences of Students with Varying Participation in Secondary Vocational Education, The National Center for Research in Vocational Education, The Ohio State University, Columbus, 1981.

101. See: Bishop, John H., The Social Payoff for Occupationally Specific Training: The Employers' Point of View, The National Center for Research in Vocational Education, The Ohio State University, Columbus, November 1982.

102. See: Herrnstadt, Irwin; Horowitz, Morris; and Sum, Andrew; The Transition From School to Work: The Contribution of Cooperative Education at the Secondary Level, Report Submitted to the Office of Research and Development, Employment and Training Administration, U.S. Department of Labor, Washington, D.C., 1979.

103. See:
    i) Leone, Richard D. and Eleey, Michael F., An Evaluation of the Program Effects of Project BEST, Center for Labor and Human Resource Studies, Temple University, Philadelphia, May 1983;
    ii) Leone, Richard D. and Eleey, Michael F., An Evaluation of the Immediate Effects of Project BEST, The Center for Labor and Human Resource Studies, Temple University, Philadelphia, March 1981.

104. See:
    i) Freeberg, Norman E. and Rock, Donald A., Assessment of the Youth Career Development Program for School-to-Work Transition: A Phase I Evaluation Demonstration Study,, Educational Testing Service, Princeton, New Jersey, Technical Report No. 2, September 1980;
    ii) Rock, Donald A., Freeberg, Norman E., et.al., The Relationship Between Program Process and Employment Outcomes for YEDPA Youth, Educational Testing Service, Princeton, New Jersey, Technical Report No. 25, November 1982;

CHAPTER TWO FOOTNOTES

1. Among the most useful reference manuals on these topics are the following:

    i) U.S. Department of Labor, Bureau of Labor Statistics, *BLS Handbook of Methods, Volume 1 & 2*, U.S. Government Printing Office, Washington, D.C., 1982;

    ii) National Occupational Information Coordinating Committee, *The Occupational Information System Handbook*, Volume 1 & 2, Washington, D.C., 1980

2. For a more comprehensive review of the alternative uses of labor force data,

    See: Cain, Glen G., "Labor Force Concepts and Definitions in View of Their Purposes," *Concepts and Data Needs: Counting the Labor Force, Appendix I*, U.S. Government Printing Office, Washington, D.C., 1979, pp. 3-45.

3. For further discussion of such uses of state and local labor force data,

    See: i) National Commission on Employment and Unemployment Statistics, *Counting the Labor Force*, U.S. Government Printing Office, Washington, D.C., 1979,

    ii) Mangum, Garth L., "Employment and Unemployment Statistics and the CETA Prime Sponsor," *Data Collection, Processing and Presentation: National and Local*, U.S. Government Printing Office, Washington, D.C., 1979, pp. 474-489.

4. For a recent review of the history of CPS survey operations and current design issues,

    See: Bregger, John E., "The Current Population Survey: A Historical Perspective and BLS' Role," *Monthly Labor Review*, June 1984, pp. 8-14.

5. Such views have been forcefully expressd by Gunnar Myrdal, but appear to have been shared by Frederick Harbison as well. In *Human Resources as the Wealth of Nations*, Harbison claimed that underemployment was the most serious problem facing underdeveloped nations. Measures of Underemployment require normative judgements about wage and earnings adequacy thresholds.

    See: i) Myrdal, Gunnar, *Asian Drama: An Inquiry into the Poverty of Nations*, New York, Twentieth Century Fund, 1968;

    ii) Harbison, Frederick, *Human Resources as the Wealth of Nations*, pp. 19-51.

6. Most labor economics textbooks provide a useful introduction to the concepts and theoretical models of labor supply. For example,

    See: Reynolds, Lloyd G., *Labor Economics and Industrial Relations*, 9th Edition, Prentice-Hall, Inc., Englewood Cliffs, 1974, pp. 87-111.

7. The labor supply curve of an individual worker need not be upward sloping. It may be completely vertical ("perfectly inelastic") signifying that a fixed number of hours will be worked regardless of the real hourly wage offered, *or* the supply curve may become "backward bending" at some point. A backward bending supply curve implies that fewer hours of labor will be supplied at higher hourly wages. Economic theory cannot predict the exact shape of the labor supply curve since rising real wages will generate two separate impacts in opposite directions upon labor supply behavior. A higher real wage will increase one's real income thereby increasing the demand for leisure ("income effect"). Simultaneously, the higher real hourly wage raises the price of leisure, thereby reducing the demand for leisure ("substitution effect"). If the substitution effect dominates, the labor supply curve will prevail if the income effect dominates.

8. *See:* Smith, Adam, *The Wealth of Nations*, Henry Regnery Co., Chicago, 1966. The roles of labor force participation behavior, hours of work, and labor

productivity in influencing the potential output of the U.S. economy are described more fully in the following publication:

U.S. Department of Labor, Bureau of Labor Statistics, *Methodology for Projections of Industry Employment to 1990*, Bulletine 2036, U.S. Government Printing Office, Washington, D.C., 1980.

9. During 1982, there were 60.7 million families in the U.S. Of this total, 53.3 million or 87.8% had one or more of its members in the labor force.

See: i) U.S. Department of Commerce, Bureau of the Census, *Characteristics of the Population Below the Poverty Level: 1982*, Series P-60, No. 144, U.S. Government Printing Office, Washington, D.C., March 1984;

ii) Flaim, Paul O., "Unemployment in 1982: The Cost to Workers and Their Families," *Monthly Labor Review*, February 1984, pp. 30-37.

10. See: Mooney, Joseph, "Urban Poverty and Labor Force Participation," *American Economic Review*, March 1967, pp. 104-119.

11. For a review of the changing size and composition of the poverty population and their implications for future anti-poverty policies,

See: i) Rivlin, Alice M. (Ed.), *Economic Choices*, The Brookings Institution, Washington, D.C., 1984;

ii Pearce, Diana M., "The Feminization of Ghetto Poverty," *Society*, November/December 1983, pp. 70-74.

12. For a review of the various methods used by other nations,

See: Organization for Economic Cooperation and Development, *Employment and Unemployment*, OECD, Paris, 1979.

13 Actually, a room may constitute a separate living quarters. For further details on these issues,

See: U.S. Department of Commerce, Bureau of the Census, *The Current Population Survey: Design and Methodology*, U.S. Government Printing Office, Washington, D.C., 1977.

14. For a review of the purposes, nature and design features of the Current Population Survey,

See: i) Bregger, John E., "The Current Population Survey: A Historical View and BLS' Role," *Monthly Labor Review*, June 1984, pp. 8-14;

ii) U.S. Department of Labor, Burau of Labor Statistics, *Handbook of Methods, Volume I*, U.S. Government Printing Office, Washington, D.C., 1982;

iii) National Commission on Employment and Unemployment Statistics, *Counting the Laboar Force*, U.S. Government Printing Office, Washington, D.C., 1979;

iv) U.S. Department of Commerce, Bureau of the Census, *The Current Population Survey: Design and Methodology*, Technical Paper 40, U.S. Government Printing Office, Washington, D.C., 1977.

15. The size of the sample of households has undergone a number of changes during the past decade. The composition of the national sample itself is currently being revised by the Bureau of the Census to represent the summation of representative samples for each of the fifty states and the District of Columbia.

See: Bregger, John E., *op.cit.*

16. The Current Population Survey does allow for *proxy respondents*. A responsible adult person in the household can provide population and labor force information for all other persons residing in that household.

17. For examples of such uses of the data from the March CPS supplements,

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See: i) U.S. Department of Commerce, Bureau of the Census, Characteristics to the Population Below the Poverty Level: 1982, Series P-60, No. 144, U.S. Government Printing Office, Washington, D.C., March 1984;

ii) Taggart, Robert, Hardship, W.E. Upjohn Institute for Employment Research, Kalamazoo, 1982;

iii) Flaim, Paul O., "Unemployment in 1982: The Cost to Workers and Their Families," Monthly Labor Review, February 1984, pp. 30-37.

18. Data from the monthly CPS survey are also used to provide direct estimates of the number of employed and unemployed persons in the city of New York and the Los Angeles-Long Beach SMSA.

See: U.S. Department of Labor, Bureau of Labor Statistics, Employment and Earnings, January 1984, "Table D-1", pp. 149-153.

19. For a review of the methods employed by the State Employment Security Agencies in generating monthly estimates of the number of employed and unemployed individuals in the states and local areas,

See: U.S. Department of Labor, Bureau of Labor Statistics, BLS Handbook of Methods, Volume I, U.S. Government Printing Office, Washington, D.C., 1984.

20. A more detailed discussion of the labor force concepts and measures used in conducting the Current Population Survey appears in the following publication:

U.S. Department of Labor, Bureau of Labor Statistics and U.S. Department of Commerce, Bureau of the Census, Concepts and Methods Used in Labor Force Statistics Derived from the Current Population Survey, BLS Report No. 463, U.S. Government Printing Office, Washington, D.C., 1976.

21. For a review of recent trends in the size and composition of the nation's armed forces and their impact on labor force data and measures,

See: i) Leon, Carol Boyd, "Working for Uncle Sam: A Look at Members of the Armed Forces," Monthly Labor Review, July 1984, pp. 3-9;

ii) Sider, Hal and Cole, Cheryl, "The Changing Makeup of the Military and the Effect on Labor Data," Monthly Labor Review, July 1984, pp. 10-13.

22. President's Committee to Appraise Employment and Unemployment Statistics, Measuring Employment and Unemployment, U.S. Government Printing Office, Washington, D.C., 1972.

23. For a review of the labor force behavior of 14-15 year olds,

See: Westcott, Diane N., "The Youngest Workers: 14 and 15-year Olds," Monthly Labor Review, February 1981, pp. 65-69.

24. For a review of the practices of other nations in measuring their labor force,

See: Organization for Economic Co-operaiton and Development, Measuring Employment and Unemployment, Paris, 1979.

25. See: Moy, Joyanna, "Recent Labor Market Developments in the U.S. and Nine Other Countries," Monthly Labor Review, January 1984, pp.44-51.

26. The annual average number of self-employed persons in the U.S. during 1983 was 9.14 million, including 1.56 million persons self-employed in the agricultural sector of the nation.

See: U.S. Department of Labor, Bureau of Labor Statistics, Employment and Earnings, "Table 23," p. 182.

A summary of recent findings on trends in the numbers and characteristics of self-employed persons in the U.S. appears in the following article:

Becker, Eugene H., "Self-Employed Workers: An Update of 1983," Monthly Labor Review, July 1984, pp. 14-18.

27. A comprehensive historical analysis of the concept of unemployment and its role in economic policy making is presented in the following volume:

    Garraty, John A., Unemployment in History: Economic Thought and Public Policy, Harper and Row Publishers, New York, 1978.

28. For a more detailed discussion of the issues involved in classifying respondents into various labor force categories,

    See: U.S. Department of Labor, Bureau of Labor Statistics, How the Government Measures Unemployment, Report 505, U.S. Government Printing Office, Washingotn, D.C., 1977.

29. For example, on an average during 1983, there were 62.7 million persons not participating in the labor force. Of these, 6.5 million, or 10.4%, expressed a desire for full or part-time employment.

    See: U.S. Department of Labor, Bureau of Labor Statistics, Employment and Earnings, January 1984, "Table 35," p. 196.

30. Use of the unemployment rate for economic policymaking has been a major source of controversy in the United States during the past decade. For a detailed review of the nature of these debates,

    See: i) National Commission on Employment and Unemployment Statistics, Counting the Labor Force, U.S. Government Printing Office, Washington, D.C., 1979;

    ii) National Commission on Employment and Unemployment Statistics, Concepts and Data Needs, Counting the Labor Force, Appendix Volume I, U.S. Government Printing Office, Washington, D.C. 1980.

31. For a review of the issues surrounding the selection of appropriate measures of labor force utilization,

    See: Shiskin, Julius, "Employment and Unemployment: The Doughnut or the Hole?", Monthly Labor Review, February 1976, pp. 3-10.

32. See: U.S. Department of Labor, Bureau of Labor Statistics, Employment and Earnings, January 1984, "Table 1," p. 156.

33. See: U.S. Department of Labor, Bureau of Labor Statistics, Employment Projections for 1995, Bulletin 2197, U.S. Government Printing Office, Washington, D.C., 1984.

34. See: U.S. Department of Labor, Bureau of Labor Statistics, Employment and Earnings, January 1984, "Table 1," p. 156.

35. See: Fullerton, Howard N. and Tschetter, John, "The 1995 Labor Force: A Second Look," Monthly Labor Review, November 1984, pp. 3-10.

36. For a more detailed discussion of these unemployment flow and stock issues and their implications for planning human resource programs,

    See: Sun, Andrew, et al., Evaluating the Performance of Employment and Training Programs at the Local Level: Volume II, The Use of Process, Outcome and Benefit-Cost Evaluation Techniques, "Appendix A: Interpreting the Unemployment Rate for CETA Title One Planning Purposes: A Stock vs. Flow Analysis," pp. 321-330.

37. For a review of historical trends in these relationships,

    See: U.S. Department of Labor, Employment and Training Report of the President: 1982, "Table B-19," p. 235.

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38. See: Flaim, Paul O., "Unemployment in 1982: The Cost to Workers and Their Families," Monthly Labor Review, February 1984, pp. 30-37.

39. Ibid., "Table 3," p. 33.

40. See: U.S. Department of Labor, Bureau of Labor Statistics, Employment and Earnings, January 1984, "Table 6," p. 163.

41. The hours of work data are collected only for those employed respondents who were at work in the reference week. Those employed respondents who were not at work during the reference week are assumed to be distributed among full and part-time job in the same proportions characterizing those at work.

42. For a more detailed review of the definitions governing the classification of workers into part-time and full-time categories,

    See: Hedges, J.N. and Gallogly, S.J., "Full and Part Time: A Review of Definitions," Monthly Labor Review, March 1977, pp. 21-28.

43. See: U.S. Department of Labor, Bureau of Labor Statistics, Labor Force Statistics Derived from the Current Population Survey: A Databook, Volume I, "Table B-22", p. 682.

44. Person working full-time but receiving weekly wages below that needed to achieve an income above the OMB poverty line were also considered "under-employed" under the CETA rules and regulations.

    See 95th U.S. Congress, Public Law 94-524: The Comprehensive Employment and Training Act Amendment of 1978, "Section 3, (27) (A) and (B).

45. The bulk of the new part-time job generated by the economy through 1995 will exist in the non-manufacturing sector of the economy, with trade and service industries accounting for the largest share of part-time employment opportunities.

    See: Personick, Valerie A., "The Job Outlook through 1995: Industry Output and Employment Projections," Monthly Labor Review, November 1983, pp. 24-35.

46. These same two sectors also provided a high fraction of the part-time jobs held by those individuals reporting themselves as employed part-time for economic reasons. During 1983, nearly 70% of all involuntary part-time workers were employed in the retail and service industries.

    See: U.S. Department of Labor, Bureau of Labor Statistics, Employment and Earnings, January 1984, "Table 32," p. 193.

47. The Bureau of Labor Statistics is currently considering a change in the procedures now used to classify individuals as being "on layoff". The information on layoffs is currently volunteered by respondents. Recent studies by the Census Bureau and the BLS have concluded that some respondents indicate that they are "on layoff" even though they do not expect to be recalled to their former jobs. A rewording of the questionnaire is being contemplated to more accurately measure the number of unemployed persons on layoff who anticipate being recalled to their former jobs.

    See: i) Bregger, John E., "The Current Population Survey: A Historical Perspective and BLS' Role," p. 13;

    ii) Bednarzik, Robert W., "Layoff and Permanent Job Losses: Workers' Traits and Cyclical Patterns," Monthly Labor Review, September 1983, p. 11.

48. See: U.S. Department of Labor, Bureau of Labor Statistics, Employment and Earnings, January 1984, "Table 12," p. 169.

49. See: U.S. Department of Labor, Bureau of Labor Statistics, Employment and Earnings, January 1980.

50. See: 97th U.S. Congress, Job Training Partnership Act of 1982, Section 302(a).

51. The CPS survey regards any period of employment or inactive job search lasting two weeks or longer as a break in the duration of unemployment.

52. These unemployment duration data represent the length of on-going spells of unemployment rather than completed spells of unemployment. Empirical evidence of this issue suggests that the probability of ending a spell of unemployment is negatively related to the duration of unemployment; i.e., persons unemployed for longer periods of time are less likely to successfully end a spell of unemployment. Thus, the data on mean durations of on-going spells of unemployment are likely to exaggerate the duration of completed spells.

    See: i) Golfarb, Robert S., "Measuring Types of Unemployment: Implications for Unemployment Statistics," in Concepts and Data Needs, pp. 99-121.

    ii) Salant, Steven, "Search Theory and Duration Data: A Theory of Sort," Quarterly Journal of Economics, February 1977, pp. 39-58.

53. The number of long-term unemployed, particularly those out of work for 27 or more weeks, has tended to peak several months after overall unemployment peaks.

    See: Rones, Philip L., "Recent Recessions Swell Ranks of the Long-Term Unemployed," Monthly Labor Review, February 1984, pp. 25-29.

54. See: i) Garfinkle, Stuart H., "The Outcome of a Spell of Unemployment," Monthly Labor Review, January 1977, pp. 54-57;

    ii) Smith, Ralph E. and Vanski, Jean E., "The Volatility of the Teenage Labor Market: Labor Force Entry, Exit, and Unemployment Flow," in Youth Unemployment: Its Measurement and Meaning, U.S. Government Printing Office, Washington, D.C. 1980;

    iii) Rones, Philip L., op. cit., p. 27;

    iv) Williams, Donald R., "Young Discouraged Workers: Racial Differences Explored," Monthly Labor Review, June 1984, pp. 36-39

55. The size of the labor force can be influenced by cyclical economic behavior in two quite different directions. Some persons (the "added workers") may enter the labor force during periods of economic decline to supplement family income, particulary when the primary breadwinner may have lost his job while others who would have entered the labor force will become "discouraged" and remain outside of the labor force. The net effect of cyclical economic behavior on the size of the labor force will depend upon which of the above two effects dominate. Empirical evidence suggests that the "discouragement" effect clearly dominates.

    See: i) Dernburg, Thomas and Strand, Kenneth, "Hidden Unemployment, 1953-62: A Quantitative Analysis by Age and Sex," American Economic Review, Volume 56, March 1966, pp. 71-95;

    ii) Finegan, T. Aldrich, The Measurement, Behavior and Classification of Discouraged Workers, National Commission on Employment and Unemployment Statistics, U.S. Government Printing Office, Washington, D.C., 1978.

56. For a review of empirical work in this field,

    See: i) Mincer, Jacob, "Labor Force Participation and Unemployment: A Review of Recent Evidence," in Prosperity and Unemployment, (Editors: R.A. and M.S. Gordon), Prosperity and Unemployment, John Wiley and Sons, New York, 1966.

    ii) Gastwirth, Joseph L., "Estimating the Number of 'Hidden Unemployed,'" Monthly Labor Review, March 1973, pp. 17-26.

57. See: U.S. President's Committee to Appraise Employment and Unemployment Statistics, Measuring Employment and Unemployment, U.S. Government Printing Office, Washington, D.C., 1962

58. The questions on current job desires of non-participants and their reasons for not currently seeking work are only asked to respondent in rotation groups 4 and 8, i.e.,

those households who have participated in the survey for the fourth or eighth month. Given the reduced number of monthly respones, the data on job desires of non-participants and the numbers and characteristics of discouraged workers are only published by the Bureau of Labor Statistics on a quarterly basis. For further details on the methodologies employed in measuring the number of discouraged workers,

See: i) Flaim, Paul O.; "Discouraged Workers and Changes in Unemployment," Monthly Labor Review, March 1973, pp. 8-16.

ii) Finegan, T. Aldrich, The Measurement, Behavior and Classification of Discouraged Workers, Background Paper No. 12, National Commission on Employment and Unemployment Statistics, Washington, D.C., 1978.

59. The concept of a "labor force overhand" was used by Eli Ginzberg to describe this group of non-participants desiring employment.

See: Ginzberg, Eli, "The Job Problem," Scientific American, Volume 237, No. 5, November 1977, pp. 43-51.

60. See: Job, Barbara Cottman, "How Likely Are Individuals to Enter the Labor Force," Monthly Labor Review, September 1979, pp. 28-34.

61. For a more detailed analysis of the characteristics of the members of the "labor force overhang" and the implications of these findings for targetting JTPA resources,

See: Sum, Andrew and Bouba, Maryann, The Extent of Job Desires of Persons Outside of the Labor Force in the United States and Massachusetts: Implications for Targetting CETA-Related Employment and Training Resources, Research and Program Development Division, Massachusetts Department of Manpower Development, Boston, 1979.

The findings presented in the above paper were based on the public use tapes from the 1976 Survey of Income and Education. Approximately 22% of non-participants living in families with incomes at or below 70% of the Bureau of Labor Statistics Lower Living Standard Income Level expressed a desire for a job at the time of the survey. The ratio was only 15% for non-participants living in families with incomes above 70% of the BLS lower living standard.

62. Respondents can provide more than one reasons for not actively seeking work. If a respondent providing multiple reasons cites a reason other than discouragement, such as "attending school" or "family responsibilities", they are not counted as discouraged workers, but instead are classified in the category fitting the other response.

See: Finegan, T. Aldrich, op. cit., pp. 4-6.

63. For a review of the labor force barriers encounted by members of the labor force overhang in Massachusetts.

See: Sum, Andrew and Bouba, Maryann, op. cit.

64 The publication of Michael Harrington's The Other American had a major impact upon the Kennedy Administration's thinking about the need for a national anti-poverty initiative.

See: i) Harrington, Michael, The Other America: Poverty in the United States, Penguin Books, New York, 1962;

ii) Moynihan, Daniel (Editor), On Understanding Poverty: Perspectives from the Social Sciences, Basic Books, New York, 1968;

iii) Patterson, James T., American's Struggle Against Poverty, 1900-1980, Harvard University Press, Cambridge, 1981.

65. For a review of the issues surrounding the development of poverty concepts and measures in the early 1960's.

See: i) Kershaw, Joseph, Government Against Poverty, Brookings Institution, Washington, D.C., 1970

ii) Plotnick, Robert and Skidmore, Felicity, Progress Against Poverty: A Review of the 1964-74 Decade, New York, 1975.

66. For further information on the construction of the poverty index,

See: i) Orshansky, Mollie, "Counting the Poor: Another Look at the Poverty Profile," Social Security Bulletin, January 1965;

ii) Poverty Studies Task Force, U.S. Department of Health, Education and Welfare, The Measure of Poverty, Washington, D.C. April 1976.

67. For a discussion of the major sources of supply for different occupations,

See: i) Freedman, Marcia and Dutka, Anna, Training Information for Policy Guidance, Employment and Training Administration, R&D Monograph 76, U.S. Government Printing Office, Washington, D.C., 1980;

ii) Mazzeo, Katherine and Sum Andrew, An Analysis of the Sources of Labor Supply and Labor Recruitment Methods of Firms Employing Workers in Fifteen High Net Demand Occupations in the Boston Metropolitan Area, Policy and Evaluation Division, Massachusetts Department of Manpower Development, Boston, 1978;

iii) Wool, Harold, The Labor Supply for Lower Level Occupations, R&D Monograph 42, U.S. Government Printing Office, Washington, D.C., 1976;

iv) Diamond, Daniel E. and Bedrosian, Hrach, The Impact of Manpower Placement and Training Programs on Low Wage Industries and Occupations, New York University, College of Business and Public Administration, New York, 1971;

v) Marshall, Ray; Glover, Robert W.; Franklin, William S.; Training and Entry into Union Construction, R & D Monograph 39, Government Printing Office, Washington, D.C., 1979.

68. For a comprehensive review of the origins and nature of internal labor markets and the role of on-the-job training,

See: Doeringer, Peter B. and Piore, Michael J., Internal Labor Markets and Manpower Anaylsis, D.C. Health, Lexington, 1971.

69. For a more detailed review of alternative sources of labor supply and the need for various types of occupational supply information,

See: i) U.S. Department of Labor, Bureau of Labor Statistics, Occupational Supply: Concepts and Sources of Data for Manpower Analysis, Bulletin 1816, U.S. Government Printing Office, Washington, D.C., 1974;

ii) Sommers, Dixie, "Occupational Supply Information and Planning for Education and Training," Paper Presented to the North American Conference on Labor Statistics, Ottawa, Canda, July 1976;

iii) Sum, Andrew; Herrnstadt, Irwin; and Sawhney, P.K.; Issues in the Development of a Comprehensive Occupational Information System for Planning Employment and Training Programs at the State and Local Level, Research and Program Development, Massachusetts Department of Manpower Development and the Department of Economics, Northeastern University, October 1977.

70. The annual average number of employed wage and salary workers in all sectors of the U.S. during 1983 was 91.1 million. This total includes wage and salary workers in the agricultural section.

    See: U.S. Department of Labor, Bureau of Labor Statistics, Employment and Earnings, January 1984, "Table 23," p. 183.

71. Office of Management and Budget, Standard Industrial Classification Manual, 1972, U.S. Government Printing Office, Washington, D.C. 1973.

72. For an example of uses of such data in producing job development guides for use by staff in local human resource agencies,

    See: Sum, Andrew and Mazzeo, Katherine, Job Development Resource Guides for the Employment and Training System, Policy and Evaluation Division, Massachusetts Department of Manpower Development, Boston, 1978.

73. The sum of the coefficients for each of the occupations in an industry must be equal to one. In this case, the sum of the parts must be equal to the whole.

74. See: U.S. Department of Labor, Bureau of Labor Statistics, Econmic Projections to 1995, Bulletin 2197, U.S. Government Printing Office, Washington, D.C., 1984.

75. See: Osterman, Paul (Editor), Internal Labor Markets, MIT Press, Cambridge, 1984.

76. See: i) U.S. Department of Labor, Bureau of Labor Statistics, BLS Handbook of Methods for Surveys and Studies, Bulletin 1910, U.S. Government Printing Office, Washington, D.C., 1976;

    ii) Hall, Robert and Lilien, David, "The Management and Significant of Labor Turnover," in Concepts and Data Needs, National Commission on Employment and Unemployment Statistics, U.S. Government Printing Office, Washington, D.C., 1980.

77. These data on job tenure provide only a rough indication of the total volume of new hires during a year. Some persons hired during a year will no longer be employed the following year when the survey of job tenure is taken. The 30% estimate is, thus, clearly a minimum estimate of the number of new hires during a year. For a more detailed review of findings of the 1981 job tenure survey,

    See: Harvath, Francis W., "Job Tenure of Workers in January 1981," in Job Tenure and Occupational Change, 1981, BLS Bulletin 2162, U.S. Government Printing Office, Washington, D.C., 1983.

78. Concepts of labor turnover in the establishment survey are described in the 1976 BLS Handbook of Methods and in monthly editions of Employment and Earnings for the period prior to December 1980 when BLS discontinued its labor turnover series.

79. For a discussion of the uses of labor turnover statistics in planning employment and training programs,

    See: i) Harrington, Paul and Sum, Andrew, Labor Market and Occupational Information for CETA Prime Sponsor Policymaking, Planning and Program Operations, Center for Labor Market Studies, Northeastern University, Boston, 1979;

    ii) Institute of Labor and Industrial Relations, the University of Michigan and Wayne State University, Proceeding of the Employment Service Potential Meeting, Sparks, Nevada, September 1979.

80. Cohen, Malcolm's and Schwartz, Arthur "U.S. Labor Turnover: Analysis of a New Measure," Monthly Labor Review, November 1980, pp. 9-14.

81. Ibid, pp. 10-11.

82. For a more detailed review of alternative uses of job vacancy data,

See: i) Sum, Andrew and Harrington, Paul, Unemployment in Massachusetts: A Critical Assessment of Its Nature and Causes, Massachusetts Senate Document No. 2050, Boston, September 1975;

ii) Sum, Andrew, "Issues Related to the Purposes, Collection, Analysis, and Interpretation of Job Vacancy Statistics," Proceedings of a National BLS Conference on Job Vacancy Statistics, Washington, D.C. 1978.

83. For examples of such uses,

See: i) Knostant, Raymond A. and Wingeard, Irvin F.O., "Analysis and Use of Job Vacancy Statistics: Part I," Monthly Labor Review, August 1968, pp. 22-31.

ii) Sum, Andrew; Mazzeo, Katherine; McLaughlin, Francis; and Zornitsky, Jeffrey; Evaluating the Performance of Employment and Training Programs at the Local Level, Volume Two: The Use of Process, Outcome and Benefit-Cost Evaluation Techniques, U.S. Department of Labor Employment and Training Administration, Boston, 1978.

84.. For a historical review of the purposes and nature of these various job vacancy survey efforts,

See: i) Harrington, Paul, The Labor Department's Experience in the Collection and Analysis of Job Vacancy Statistics: The Experimental Programs of 1964-1966, Center for Labor Market Studies, Northeastern University, 1980;

ii) Frumerman, Harry, Job Vacancy Statistics in the United States, Background Paper No. 3, National Commission on Employment and Unemployment Statistics, Washington, D.C., 1978;

iii) Harrington, Paul and Sum, Andrew, Skills Shortages in the American Economy: Their Past, Present, and Future Impact on Employment and Training Policy, Report Prepared for the National Bureau for Economic Research, Cambridge, 1984.

85. Job vacancy definitions are discussed in the following papers:

i) Wingeard, Irving, Job Vacancy Definition, unpublished paper prepared for U.S. Department of Labor, Bureau of Labor Statistics, Washington, D.C., 1964;

ii) Frumerman, Harry, op.cit.

iii) Sum, Andrew, "Issues Related to the Purposes, Collection...."

86. For example,

See: Devine, Eugene, Analysis of Manpower Shortages in Local Government, Praeger Publishers, New York, 1970.

87. For a review of alternative uses of employment projections data,

See: i) Lecht, Leonard A., "Occupational Projections for National, State and Local Areas," in Concepts and Data Needs: National Commission on Employment and Unemployment Statistics, U.S. Government Printing Office, Washington, D.C., pp.510-539;

ii) Drewes, D. W. and Katz, D. S., Manpower Data and Vocational Education, Center for Occupational Education, North Carolina State University at Raleigh, 1975;

iii) Harrington, Paul E. and Sum, Andrew M., Labor Market and Occupational Information for CETA Prime Sponsor Policymaking, Planning, and Program Operations, Center for Labor Market Studies, Northeastern University, Boston, Massachusetts, 1980.

88. See: i) U.S. Department of Labor, Bureau of Labor Statistics, Employment Projections for 1995, Bulletin 2197, U.S. Government Printing Office, Washington, D.C., 1984;

ii) U.S. Department of Labor, Bureau of Labor Statistics, Industry Employment Projection Models for States and Areas, OES Matrix/Projections Memorandum No. 9, Washington, D.C., July 1978;

iii) Goldstein, Harvey A., Occupational Employment Projections for Labor Market Areas: An Analysis of Alternative Approaches, Final Report, Submitted to Office of Research and Development, Employment and Training Administration, U.S. Department of Labor, July 1980.

89. See: i) U.S. Department of Labor, Bureau of Labor Statistics, Employment Projections for 1995, Bulletin 2197, U.S. Government Printing Office, Washington, D.C., 1984;

ii) Andreassen, A.J., et al., "Economic Outlook for the 1990's: Three Scenarios for Growth," Monthly Labor Review, November 1983, pp. 11-23;

iii) Silvestri, George T., et al., "Occupational Employment Projections Through 1995," Monthly Labor Review, November 1983, pp. 50-58.

90. See: i) U.S. Department of Labor, Bureau of Labor Statistics, Tomorrow's Manpower Needs, Volume 1, Bulletin 1606, Washington, D.C., 1969;

ii) U.S. Department of Labor, Bureau of Labor Statistics, Tomorrow's Manpower Needs, Supplement Number Four: Estimating Occupational Separations from the Labor Force for States, U.S. Government Printing Office, Washington, D.C., 1974;

iii) U.S. Department of Labor, Bureau of Labor Statistics, Occupational Projections and Training Data, Bulletin 1918, U.S. Government Printing Office, Washington, D.C., 1976.

91. These separation rates typically are based on data from national working life tables that provide information on the number of labor force withdrawals for persons in various age/sex groups and state data on the age/sex composition of employed persons in this occupation.

See: i) U.S. Department of Labor, Bureau of Labor Statistics, Tomorrow's Manpower Needs, Supplement Number Four...;

ii) U.S. Department of Labor, Bureau of Labor Statistics, Occupational Employment Statistics Handbook, Washington, D.C., 1979.

iii) U.S. Department of Labor, Bureau of Labor Statistics, New Worklife Estimates, Bulletin 2157, Washington, D.C., November 1982.

92. See: i) Eck, Alan, "New Occupational Separation Data Improve Estimates of Job Replacement Needs," Monthly Labor Review, March 1984, pp. 3-10;

ii) U.S. Department of Labor, Bureau of Labor Statistics, Occupational Projections and Training Data, Bulletin 2206, U.S. Government Printing Office, Washington, D.C., 1984.

93. A comprehensive review of alternative shortage concepts appears in the following report.

Sum, Andrew and Harrington, Paul, Skills Shortages in the American Economy...

94. For a review of the empirical on this issue,

See: i) Camil Associates, Recruitment, Job Search and the U.S. Employment Service, U.S. Department of Labor, Employment and

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Training Administration, R&D Monograph 43, U.S. Government Printing Office, Washington, D.C., 1976;

ii) Bishop, John; Barron, John; and Hollenbeck, Kevin; Recruiting Workers: How Recruitment Policies Affect the Flow of Applicants and Quality of New Workers, The National Center for Research in Vocational Education, Columbus, 1983.

iii) Sum, Andrew and Harrington, Paul, Skills Shortages and Employment and Training Policy....

CHAPTER THREE FOOTNOTES

1. See: 97th U.S. Congress, Job Training Partnership Act, 1982.

2. See: 98th U.S. Congress, Carl D. Perkins Vocational Education Act, "Section 422".

3. For a review of the various methods used by other nations,

   See: Organization for Economic Cooperation and Development, Employment and Unemployment, OECD, Paris, 1979.

4. Actually, a room may constitute a separate living quarters. For further details on these issues,

   See: U.S. Department of Commerce, Bureau of the Census, The Current Population Survey: Design and Methodology, U.S. Government Printing Office, Washington, D.C., 1977.

5. For a review of the purposes, nature and design features of the Current Population Survey,

   See: i) Bregger, John E., "The Current Population Survey: A Historical View and BLS' Role," Monthly Labor Review, June 1984, pp. 8-14;

   ii) U.S. Department of Labor, Burau of Labor Statistics, Handbook of Methods, Volume I, U.S. Government Printing Office, Washington, D.C., 1982;

   iii) National Commission on Employment and Unemployment Statistics, Counting the Laboar Force, U.S. Government Printing Office, Washington, D.C., 1979;

   iv) U.S. Department of Commerce, Bureau of the Census, The Current Population Survey: Design and Methodology, Technical Paper 40, U.S. Government Printing Office, Washington, D.C., 1977.

6. The size of the sample of households has undergone a number of changes during the past decade. The composition of the national sample itself is currently being revised by the Bureau of the Census to represent the summation of representative samples for each of the fifty states and the District of Columbia.

   See: Bregger, John E., op.cit.

7. The Current Population Survey does allow for proxy respondents. A responsible adult person in the household can provide population and labor force information for all other persons residing in that household.

8. For examples of such uses of the data from the March CPS supplements,

   See: i) U.S. Department of Commerce, Bureau of the Census, Characteristics to the Population Below the Poverty Level: 1982, Series P-60, No. 144, U.S. Government Printing Office, Washington, D.C., March 1984;

   ii) Taggart, Robert, Hardship, W.E. Upjohn Institute for Employment Research, Kalamazoo, 1982;

   iii) Flaim, Paul O., "Unemployment in 1982: The Cost to Workers and Their Families," Monthly Labor Review, February 1984, pp. 30-37.

9. Data from the monthly CPS survey are also used to provide direct estimates of the number of employed and unemployed persons in the city of New York and the Los Angeles-Long Beach SMSA.

   See: U.S. Department of Labor, Bureau of Labor Statistics, Employment and Earnings, January 1984, "Table D-1", pp. 149-153.

10. For a review of the methods employed by the State Employment Security Agencies in generating monthly estimates of the number of employed and unemployed individuals in the states and local areas,

See: U.S. Department of Labor, Bureau of Labor Statistics, BLS Handbook of Methods, Volume I, U.S. Government Printing Office, Washington, D.C., 1984.

11. This establishment concept is quite different from the concept of a firm or enterprise which may produce a wide variety of products and services at diverse locations throughout the state or nation.

    See: U.S. Department of Labor, Bureau of Labor Statistics, BLS Handbook of Methods, Volume 1, Bulletin 2134-1, U.S. Government Printing Office, Washington, D.C., 1973.

12. For a review of the methodological issues, involved in classifying occupations and using such information for planning,

    See: i) Cain, Glen G.; Hansen, W. Lee; and Weisbrod, Burton; "Occupational Classification: An Economic Approach," Monthly Labor Review, February 1967, pp. 48-52;

    ii) Fine, Sidney A., "The Use of the Dictionary of Occupational Titles as a Source of Estimates of Educational and Training Requirements," The Journal of Human Resources, Summer 1968, pp. 363-375..

    iii) National Occupational Information Coordinating Committee, The Occupational Information System Handbook, Vol. 1 and 2, U.S. Government Printing Office, Washington, D.C., 1980;

    iv) Scoville, James G. Manpower and Occupational Analysis: Concepts and Measurement, D.C. Heath and Co., Lexington, Mass. 1972.

13. During the past few years, the Bureau of the Census has shifted to use of a modified version of the Standard Occupational Classification system in tabulating employment data from the decennial census and the monthly CPS survey. Beginning in January 1983, the monthly CPS employment data are classified on the basis of SOC occupational categories.

    See: U.S. Department of Labor, Bureau of Labor Statistics, Employment and Earnings, February 1983.

14. See: i) Edwards, Alba, Comparative Occupation Statistics for the United States, 1870-1940, U.S. Bureau of the Census, 1943;

    ii) Dunlop, John T. "Vacancy Measures and Economic Analysis" in The Measurement and Interpretation of Job Vacancy Statistics, National Bureau of Economic Statistics, New York, 1966.

15. U.S. Department of Labor, Employment and Training Administration, Dictionary of Occupational Titles, Fourth Edition, U.S. Government Printing Office, Washington, D.C., 1977.

16. See: Fine, Sidney A., op. cit.

17. See: U.S. Department of Labor, Bureau of Labor Statistics, BLS Handbook of Methods, Volume 1, Bulletin, 2134-1, U.S. Government Printing Office, Washington, D.C., December 1982.

18. During 1984, the number of individual job titles in the OES system was being reduced by the Bureau of Labor Statistics. The total number of job titles in the OES system was projected to be ______ by the end of the year.

19. See: i) Parnes, Herbert S., Forecasting Educational Needs for Economic and Social Development, Organization for Economic Cooperation and Development, Paris, 1968;

    ii) Kidder, David, Review and Synthesis of Research on Manpower Forecasting for Vocational-Technical Education, The Ohio State University, Columbus, Ohio, 1972.

20. For a more detailed discussion of the nature and strengths of employer-based occupational staffing pattern data,

See: i) Goldstein, Harold, "The New Federal-State Occupational Employment Statistics Program," Monthly Labor Review, October 1977, pp. 12-17;

ii) Sum, Andrew, Issues in the Development of a Comprehensive Occupational Information System for Planning Educational and Training Programs at the State and Local Level in Massachusetts, Department of Economics, Northeastern University, Boston, 1977.

21. For a review of the nature, features, and uses of this program,

See: i) U.S. Department of Labor, Buearu of Labor Statistics, Handbook of Methods, U.S. Government Printing Office, Washington, D.C., 1984;

ii) Sum, Andrew and Harrington, Paul, Labor Market and Occupational Information for CETA Prime Sponsor Policymaking, Planning and Program Operations, National Occupational Information Coordinating Committee, Washington, D.C., 1980.

22. See: i) Stevens, David W., "Employment Projection Methods and Applications in Planning Human Resource Development Programs," in Human Resources and Regional Economic Development, U.S. Department of Commerce, Economic Development Administration, Washington, D.C., 1975;

ii) U.S. Department of Labor, Bureau of Labor Statistics, Employment Projections for 1995, Bulletin 2197, U.S. Government Printing Office, Washington, D.C., 1984.

23. Among the most useful reference manuals on these topics are the following:

i) U.S. Department of Labor, Bureau of Labor Statistics, BLS Handbook of Methods, Vol. 1 & 2, U.S. Government Printing Office, Washington, D.C., 1982;

ii) National Occupational Information Coordinating Committee, The Occupational Information System Handbook, Vol. 1 & 2, Washington, D.C., 1980.

24. For more comprehensive review of the alternative uses of labor force data,

See: Cain, Glen G., "Labor Force Concepts and Defnitions in View of Their Purposes," Concepts and Data Needs: Counting the Labor Force, Appendix 1, U.S. Government Printing Office, Washington, D.C., 1979, pp. 3-45.

25. Most labor economics textbooks provide a useful introduction to the concepts and theoretical models of labor supply. For example,

See: Reynolds, Lloyd G., Labor Economics and Industrial Relations, 9th Edition, Prentice-Hall, Inc., Englewood Cliffs, 1974, pp. 87-III.

26. The labor supply curve of an individual worker need not be upward sloping. It may be completely vertical ("perfectly inelastic") signifying that a fixed number of hours will be worked regardless of the real hourly wage offered, or the supply curve may become "backward bending" at some point. A backward bending supply curve implies that fewer hours of labor will be supplied at higher hourly wages. Economic theory cannot predict the exact shape of the labor supply curve since rising real wages will generate two separate impacts in opposite directions upon labor supply behavior. A higher real wage will increase one's real income thereby increasing the demand for leisure ("income effect"). Simultaneously, the higher real hourly wage raises the price of leisure, thereby reducing the demand for leisure ("substitution effect"). If the substitution effect dominates, the labor supply curve will prevail if the income effect dominates.

CHAPTER FOUR FOOTNOTES

1. See: 97th U.S. Congress, Job Training Partnership Act, 1982.

2. See: 98th U.S. Congress, Carl D. Perkins Vocational Education Act, "Section 422".

3. See: 97th U.S. Congress, Job Training Partnership Act, "Section 104(c)," 1982.

4. George Copa has argued that changing priorities and areas of program emphases for the nation's public vocational education system will expand information requirements in a number of new directions, including identification of economically depressed communities, occupational areas in which female representation need to be expanded, emerging skill needs, and occupational areas in which skills shortages may occur.

   See: Copa, George, "How to Use Labor Market Information to Improve Vocational Education," Thrust: The Journal of Employment and Training Professionals, Volume 4, No. 1, Winter/Spring 1982, pp. 16-24.

5. See: 98th U.S. Congress, The Carl D. Perkins Vocational Education Act of 1984, "Section 113(a)(3)(A) and (B)," 1984.

6. Ibid., Section 321(a).

7. For a discussion of the potential use of such local labor market information in the design of effective marketing strategies by Job Service employer service representatives,

   See: i) Chadwin, Mark Lincoln, et.al., The Employment Service: An Institutional Analysis, Employment and Training Administration R & D Monograph 51, U.S. Government Printing Office, Washington, D.C., 1977;

   ii) Freeman, Therese, et.al., An Analysis of the Employer Service Representative Program for the Massachusetts Division of Employment Security, Harvard University, Department of City and Regional Planning, Cambridge, 1978;

   iii) State of California, Employment Development Department, Employment Service Potential, Volume 1: The Dimensions of Labor Turnover, Sacramento, 1979.

8. The "classical" rational approach to decisionmaking is described by Lindblom in the following volume:

   Lindblom, Charles E., The Policy-Making Process, Englewood Cliffs, New Jersey, Prentice-Hall, 1968.

9. For a more detailed review of the features of such a rational planning process for human resource programs,

   See: i) Sum, Andrew, et.al., Evaluating the Performance of Employment and Training Programs at the Local Level, Volume II: The Use of Process, Outcome, and Benefit-Cost Evaluation Techniques, Employment and Training Administration, Boston, 1978;

   ii) Mangum, Garth, et.al., Job Market Futurity: Planning and Managing Local Manpower Programs, Olympus Publishing Company, Salt Lake City, 1979.

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10. The specific nature and dimensions of labor market problems are not frequently known by state and local human resource policymakers. Objective analysis of existing human resource problems is, thus, critical to the determination of appropriate target groups. For similar views of the need of such analysis in defining "problems" for policymakers,

See: Lindblom, Charles E., The Policy-Making Process, Englewood Cliffs, New Jersey, Prentice-Hall, 1968.

11. Such circularity is also believed to characterize the policymaking process in many different public policy areas. The concept of "circularity" in the policymaking process is described in the following publications:

i) Nakamura, Robert T. and Smallwood, Frank, The Politics of Policy Implementation, St. Martin's Press, New York, 1980;

ii) Rein, Martin and Rabinovitz, Francine F., " "Implementation: A Theoretical Perspective," in American Politics and Public Policy, (Eds. Walter D. Burnham and Martha W. Weinberg), M.I.T. Press, Cambridge, 1978.

12. Critiques of the rational model of policymaking and planning are presented in the following publications:

i) Levine, Robert A., Public Planning: Failure and Redirection, Basic Books, Inc., New York, 1972;

ii) Nakamura, Robert T. and Smallwood, Frank, The Politics of Policy Implementation, pp. 7-19;

iii) Rabinovitz, Francine F., City Politics and Planning, Atherton Press, New York, 1969.

13. For a review of the concept of "muddling through" and its application to the planning of employment and training programs at the local level,

See: i) Lindblom, Charles E., "The Science of Muddling Through", Public Administration Review, Spring 1959, pp. 79-88;

ii) McLaughlin, Francis E., "Some Comments on the CETA Planning Process," Unpublished Paper, Boston College, Department of Economics, July 1981.

14. In addition to data on current labor force trends in state and local labor areas available from the Current Population Survey (CPS) and the Local Area Unemployment Statistics program (LAUS), short-term projections (1 to 2 years) of labor force, employment, and unemployment developments are generated by state econometric models. For example,

See: Treyz, George I., An Overview of the Massachusetts Economic Policy Analysis (MEPA) Model and Its Use from 1977 through 1980, Paper Presented at a Conference on Assessment of the State of the Art in Regional Modeling, Cambridge, April 1980.

Short-term employment projections for a selected number of industrial sectors are also frequently produced by state econometric models of the type noted above. Recently, a few efforts have been made to generate more detailed short-term industry and occupational employment projections at the state level for use in planning job training programs.

See: New York State, Department of Labor, Division of Research and Statistics, *Projection of Job Opportunities, New York State, 1985-1987,* Albany, 1984.

15. For examples of uses of labor market data in designing employment and training programs for the economically disadvantaged,

    See: i) Bouba, Maryann and Sum, Andrew, *Targetting CETA Resources: An Analysis of the Demographic, Socio-economic, and Labor Force Characteristics of Massachusetts Family Heads Potentially Eligible for CETA-Related Employment and Training Programs.* Policy and Evaluation Division, Massachusetts Department of Manpower Development, September 1979;

    ii) Vinson, Robert and Sum, Andrew M., "Policy Issues in Targetting CETA Resources to Massachusetts Residents," in *Current Issues in Employment and Training Policy, Planning, and Evaluation.* (Editors: Paul E. Harrington, Morris Horowitz, and Andrew M. Sum), Boston, 1980.

16. *See:* Levine, Robert A., *Public Planning: Failure and Redirection.* Basic Books Inc., New York, 1972, pp. 164-165.

17. *See:* Ripley, Randall B., *CETA Prime Sponsor Management Decisions and Program Goal Achievement.* U.S. Department of Labor, Employment and Training Administration, R & D Monograph 56, U.S. Government Printing Office, Washington, D.C., 1978.

18. *See:* Ripley, Randall B., *Areawide Planning in CETA.* U.S. Department of Labor, Employment and Training Administration, R & D Monograph 74, U.S. Government Printing Office, Washington, D.C., 1979, p. 108.

19. *See:* Chadwin, Mark Lincoln, et.al., *The Employment Service: An Institutional Analysis.* U.S. Department of Labor, Employment and Training Administration, R & D Monograph 51, U.S. Government Printing Office, Washington, D.C., 1977.

20. *See:* Mitchell, John J.; Chadwin, Mark L.; and Nightingale, Demetra S.; *Implementing Welfare-Employment Programs: An Institutional Analysis of the Work Incentive (WIN) Program.* U.S. Department of Labor, Employment and Training Administration, R & D Monograph 78, U.S. Government Printing Office, Washington, D.C., 1980.

21. *See:* McKinney, Floyd L.; Franchak, Stephen J.; Halasz, Ida M.; and Morris, Irene; *Factors Relating to the Job Placement of Former Secondary Vocational Education Students.* Report Prepared for the U.S. Department of Education, Office of Vocational and Adult Education, 1982.

22. *See:* i) Rock, Donald A. and Freeberg, Norman E., *The Relationship Between Program Process and Employment Outcomes for YEDPA Youth.* Educational Testing Service, Princeton, New Jersey, Technical Report No. 25, November 1982.

    ii) Sum, Andrew, *Interpreting and Assessing the Employment and Earnings Impacts of Jobs for America's Graduates and Jobs for Delaware Graduates Programs.* Boston, 1984.

23. *See:* Boyer, Ernest L., *High School: A Report on Secondary Education in America*, Harper and Row Publishers, New York, 1983.

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24. See: i) Cuban, Larry, "Transforming the Frog Into a Prince: Effective Schools Research, Policy, and Practice at the District Level," Harvard Educational Review, Vol. 54, No. 2, May 1984, pp. 129-151;

ii) Education Commission of the States, State Education Leader, Summer 1982;

iii) Edmonds, Ronald, "Programs of School Improvement: An Overview," Educational Leadership, Vol. 40, 1982, pp. 4-11.

25. See: Sizer, Theodore R., Horace's Compromise: The Dilemma of the American High School, Houghton Mifflin Company, Boston, 1984.

26. For a discussion of alternative criteria for selecting target groups for various human resource programs,

See: i) Palmer, John L., "Improving Private Sector Job Opportunities for Selected Target Groups," Increasing Job Opportunities in the Private Sector, National Commission for Manpower Policy, Special Report No. 29, Washington, D.C., November 1978, pp. 7-31;

ii) Sum, Andrew and Harrington, Paul, Identifying and Analyzing the JTPA Eligible Population in North Carolina: Uses of the Employment and Training Program Planning Packages, Center for Labor Market Studies, Northeastern University, Boston, 1985.

27. See: i) Vinson, Robert and Sum, Andrew, "Policy Issues in Targetting CETA Resources for Massachusetts Residents," Current Issues in Employment and Training Policy, Planning, and Evaluation, Center for Labor Market Studies, Northeastern University, Boston, 1980;

ii) Sum, Andrew M.; Meehan, Edward M.; and Ganz, Russell; "The Economically Disadvantaged in New England," New England Journal of Employment and Training, Vol. 1, No. 1, Winter 1981, pp. 23-53.

28. The mission statements of many CETA prime sponsors were frequently in conflict with the specific program strategies employed by them. The expected wages and incomes of the jobs which participants were anticipated to enter were not sufficiently high to achieve the basic mission of the system.

See: Sum, Andrew; Mazzeo, Katherine; McLaughlin, Francis; and Zornitsky, Jeffrey; Evaluating the Performance of Employment and Training Programs at the Local Level, Volume One: The Role of Program Evaluation at the Local Level, Employment and Training Administration, Washington, D.C., 1978.

29. See: White, Barry, "CETA Program Evaluation: The OMB Perspective," U.S. Department of Labor Conference on CETA Title II Performance Measures, Arlington, Virginia, 1980.

30. Practical and systematic uses of industry and occupational employment data in selecting occupational areas for training are described in the following publications:

i) Connelly, Catherine and Saxton, Steven, How to Develop and Use Labor Market Information in Local Occupational Program Planning, California Occupational Information Coordinating Committee, Sacramento, December 1982;

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ii) Copa, George H. and Kleven, Bruce A., Job Selection Patterns: Linkage Between Vocational Education Programs and the Labor Market, Department of Vocational and Technical Education, Minneapolis, Feb. 1977;

iii) Hughes, Mark, et.al., (Editors), Jobs in the Private Sector: Uses of Labor Market Information. Employment and Training Administration, Division of Labor Market Information, Monograph No. 2, U.S. Government Printing Office, Washington, D.C., October 1980;

iv) Sum, Andrew and Harrington, Paul, Labor Market and Occupational Information for CETA Prime Sponsor Policymaking, Planning, and Program Operations, pp. 95-124, 177-238.

31. For example, staff within CETA prime sponsor and Employment Service organizations were nearly unanimous in their expressed need for data on current job vacancies and their wage rates. A much lower proportion of such staff (37%) indicated a need for projected demand information. The latter type of information, however, was needed by nearly two-thirds of secondary voctional education staff and nearly 60% of the staff in post-secondary vocational education programs.

See: Lawrence, John E. and Gross, John, Occupational Information Needs at the State Level: An Empirical Study of Data Needs Assessment Surveys. "Figure 1".

32. See: Commonwealth of Pennsylvania, Department of Labor and Industry and Pennsylvania State Occupational Information Coordinating Committee, Pennsylvania Occupational Information System: Labor Demand-Supply Relationship Component, Harrisburg, 1984.

33. A discussion of key issues involved in interpreting projected occupational demand/supply data for planning purposes is presented in the two following publications:

i) Sum, Andrew, et.al., Issues in the Development of a Comprehensive Occupational Information System for the State of Massachusetts. Report Prepared for the Massachusetts Division of Employment Security, Boston, 1977;

ii) Frugoli, Pamela L., An Introduction to Using an Occupational Information System: A Reference for Program Planning. NOICC Administrative Report No. 8, August 1983.

34. Alternative types of human resource strategies (job matching, job creation, job restructuring, altering employment access) require somewhat different types of labor market and occupational information.

See: Sum, Andrew, et.al., Evaluating the Performance of Employment and Training Programs at the Local Level. Volume 2: The Use of Process, Outcome, and Benefit-Cost Analysis. Employment and Training Administration, Boston, 1978.

35. The critical role of policy and program implementation in determining the eventual success of policies and programs is discussed in detail in the following volumes:

i) Pressman, Jeffrey, L. and Wildavsky, Aaron, Implementation, Second Edition, University of California Press, Berkeley, 1979;

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ii) Bardach, Eugene, The Implementation Game: What Happens After a Bill Becomes a Law, The MIT Press, Cambridge, 1977;

iii) Nakamura, Robert T. and Smallwood, Frank, The Politics of Policy Implementation, St. Martin's Press, New York, 1980.

36. The remarks of Robert Chambers appeared in the following volume: Murelius, Olof, An Institutional Approach to Project Analysis in Developing Counties, Development Centre of the Organisation for Economic Co-operation and Development, Paris, 1981.

37. See: i) Herr, Edwin L., Role of an Occupational Information System in Career Counseling and Guidance, A Report Prepared for the National Occupational Information Coordinating Committee, March 1981;

ii) O'Dell, Charles E., OIS and the Employment Security System: A Needs and Resources Assessment, A Report Prepared for the National Occupational Information Coordinating Committee, March 1981.

38. Moriarty, Joseph., Occupational Information System and Vocational Rehabilitation: A Concept Paper, A Report Prepared for the National Occupational Information Coordinating Committee, March 1981.

39. See: Harrington, Thomas and O'Shea, Arthur, Guide for Occupational Exploration, American Guidance Society, Circle Pines, MN, 1984.

40. Herr, Edwin L., op.cit. pp. 32-33.

41. See: i) Campbell, R.E.; Connell, J.B., Boyle, K.K.; and Bhaerman, R.D., Enhancing Career Development: Recommendations for Action, National Center for Research in Vocational Education, The Ohio State University, 1978;

ii) Deems, Richard S., Career Development in Adult Basic Education Programs, The National Center for Research in Vocational Education, The Ohio State University, Columbus, 1983;

iii) Herr, Edwin L. and Cramer, Stanley H., Career Guidance Through the Life Span, Little, Brown and Company, Boston, 1979.

42. See: Herr, Edwin L., "Preparing the School Counselor to Function in Career Education," in The School Counselor's Involvement in Career Education, (Ed. F. Burtnett), American Personnel and Guidance Association, 1980.

43. The need for improved information of the world of work among high school youth, especially youth from low income and minority families, is discussed in the following publications:

i) National Commission for Manpower Policy, From School to Work: Improving the Transition, U.S. Government Printing Office, Washington, D.C., 1976;

ii) National Manpower Institute, Between Two Worlds: Youth Transition from School to Work, Youth Knowledge Development Report 2-3, U.S. Government Printing Office, Washington, D.C., 1980;

iii) U.S. Department of Labor, Employment and Training Administration, Career Thresholds, Vol. 1-6, U.S. Government Printing Office, Washington, D.C.

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44. Evidence on the impacts of world of work knowledge upon the post high school employment and earnings experiences of young adults is mixed. A recent summary of the evidence appears in the following publications:

    i) Sum, Andrew and Harrington, Paul, Educational Attainment, Academic Ability, and the Employability and Earnings of Young Persons: Implications for the Planning and Design of JTPA Youth Programs. Report Prepared for the Ford Foundation, December 1983;

    ii) Paulson, Nancy Ann, Data Needs and Uses in the Context of an Occupational Information System: A Review of the Literature. Report Prepared for the National Occupational Information Coordinating Committee, Research Triangle Institute, North Carolina, March 1981.

45. See: The National Center for Research in Vocational Education, "Youth's Perceptions of Employer Hiring and Job Performance Standards," Facts and Findings, Fall 1984, Volume 2, Number 13.

46. The case for job search training programs and descriptions of alternative job search training models are presented in the following publications:

    i) Johnson, Miriam, The State of the Art in Job Search Training, Olympus Research Centers, Salt Lake City, 1982;

    ii) Wegmann, Robert, "Job Search Assistance: A Review," Journal of Employment Counseling, December 1979, pp. 197-226;

    iii) Wegmann, Robert, Re-Employment Assistance for Laid-Off Workers. The National Center for Research in Vocational Education, The Ohio State University, Columbus, 1983.

47. Some job club models based heavily on behavioral psychology do not provide any discussion of labor market or occupational information.

    See: Johnson, Miriam, op.cit., p. 41.

48. Methods for relating SIC codes to the yellow pages of telephone directories are described in the following publication:

    State of California, Employment Development Department, Employment Data and Research, How to Develop and Use Labor Market Information in Local Occupational Program Planning, Supplement 1: Standard Industrial Classification to Yellow Page Listing. Sacramento, 1983.

49. Combined use of available information on existing job openings together with information generated by the actual job search activities of participants is believed to be preferable to sole reliance on either source alone.

    See: Wegmann, Robert G., Reemployment Assistance for Laid-Off Workers, p. 29.

50. See: Drewes, Donald W. and Bice, Garry R., Occupational Information and Vocational Education: A Concept Paper. Research Triangle Institute, North Carolina, March 1981.

51. See: Wilms, Wellford, "The Limited Utility of Vocational Education: California Employers' Views," Public Affairs Report, Institute of Government Studies, University of California, Berkeley, August 1983.

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52. *See:* Barton, Paul E., "Youth Transition to Work: The Problem and Federal Policy Setting," *From School to Work: Improving the Transition*, pp. 1-19, U.S. Government Printing Office, Washington, D.C., 1976.

53. *See:* 97th U.S. Congress, *Job Training Partnership Act of 1982*, "Section 106(b)(2)."

54. *See:* 98th U.S. Congress, *Carl D. Perkins Vocational Education Act*, "Section 113(a)(3)(A) and (B)" and "Section 113 (b)(9)(A)."

55. For a review of the issues related to the design of such competency-based systems and past efforts to implement such systems under the YEDPA legislation,

See: i) Center for Employment and Income Studies, Brandeis University, *An Introduction to Competency-Based Employment and Training Programming for Youth Under the Job Training Partnership Act*, Waltham, 1983;

ii) Michel, Ann C. and Reicher, Rita L., *Benchmarking: A State of the Art Review*, Syracuse Research Corporation, Syracuse, 1981.

56. For examples of such interindustry and size class differences in hiring policies and practices,

See: i) Mazzeo, Katherine and Sum, Andrew, *An Analysis of Hiring Standards and Wage Policies of Firms Employing Workers in Fifteen High Net Demand Occupations in the Boston Metropolitan Area*, Research and Program Development Division, Massachusetts Department of Manpower Development, Boston, 1978;

ii) Mazzeo, Katherine and Sum, Andrew, *An Analysis of On-the-Job Training, Promotion Opportunities, and Job Vacancies in the Fifteen High Net Demand Occupations*, Research and Program Development Division, Massachusetts Department of Manpower Development, Boston, 1978;

iii) Osterman, Paul (Editor), *Internal Labor Markets*, MIT Press, Cambridge, 1984.

57. Recent evidence on the hiring policies and practices of firms employing former participants in YEDPA-related youth programs has revealed that many employers use *no* formal interviewing or testing procedures whatsoever in hiring youth.

See: Gottlieb, David and Driscoll, Eleanor, *Entering the World of Work: Young Americans and Their Employers*, Educational Testing Service, Princeton, New Jersey, 1982.

58. Past problems in organizing job development activities for the economically disadvantaged and recommendations for improving the job development and placement function are reviewed in the following publication:

Ferman, Louis, *Job Development for the Hard-to-Employ*, U.S. Department of Labor, Manpower Administration, Washington, D.C., 1968.

59. Appropriate methods for organizing these industry and occupational employment data in planning job development and placement marketing strategies are described in the following publication:

Sum, Andrew, *The Use of Labor Market Information in Designing Effective Job Development and Placement Strategies*, Center for Labor Market Studies, Northeastern University, 1982.

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60. Among available publications illustrating practical uses of these various establishment listings in the job development and job search process are the following:

  i) Sum, Andrew and Mazzeo, Katherine, Job Development Resource Guides for the Employment and Training System. Policy and Evaluation Division, Massachusetts Department of Manpower Development, November 1979;

  ii) State of California, Employment Development Department, Employment Data and Research, How to Develop and Use Labor Market Information in Local Occupational Program Planning. Supplement 1: Standard Industrial Classification to Yellow Page Listings. Sacramento, March 1983;

  iii) State of Maine, Industrial Development Department, Directory of Maine Employers. Augusta, 1983.

61. See: i) Herr, Edwin L., Role of Occupational Information System in Career Guidance and Counseling. pp. 40-42;

  ii) Moriarity, Joseph B., The Occupational Information System and Vocational Rehabilitation: A Concept Paper. p. 43;

  iii) Odell, Charles, OIS and the Employment Security System: A Needs and Resource Assessment. pp. 12-13.

62. For a review of the issues involved in selecting appropriate performance measures and standards for human resource programs,

See: i) King, Christopher T.; Harkins, William H.; Geraci, Vincent J.; CETA Title II Performance Measurement Issues. Paper Prepared for CETA Title II Performance Measures Conference, Arlington, Virginia, 1980;

  ii) Dorrer, John, Performance Measurement Issues: A Prime Sponsor Perspective. Paper Prepared for CETA Title II Performance Measures Conference, Arlington, Virginia, 1980;

  iii) Gardner, John A.; Campbell, Paul; Seitz, Patricia; Influences of High School Curriculum on Determinants of Labor Market Experiences. The National Center for Research in Vocational Education, The Ohio State University, Columbus, October 1982.

63. The purposes and nature of these different types of evaluation studies are described in the following publications:

  i) Borus, Michael E. Measuring The Impact of Employment-Related Social Programs. W.E. Upjohn Institute for Employment Research, Kalamazoo, 1979;

  ii) Freeman, Howard E.; Rossi, Peter H., and Wright, Sonia R.; Evaluating Social Projects in Developing Countries. Development Centre of the Organization for Economic Cooperation and Development, Paris, 1979;

  iii) Rossi, Peter H.; Freeman, Howard E., and Wright, Sonia; Evaluation: A Systematic Approach. Sage Publications, London, 1979;

  iv) Sum, Andrew; Mazzeo, Katherine; McLaughlin, Francis and Zornitsky, Jeffrey; Evaluating the Performance of Employment and Training Programs at the Local Level. Volume Two: The Use of Process, Outcome, and Benefit-Cost Techniques. Employment and Training Administration, Boston, 1978.

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64. For example, Edwin Herr has recommended that future efforts to generate new information on occupational characteristics attempt to "develop flow charts which suggest where workers come from and where they go using both occupational and training alternatives as input variables."

See: Herr, Edwin L., The Role of an Occupational Information System in Career Guidance and Counseling, p. 51.

65. Impact evaluations require the use of comparison or control groups to estimate the net effects of program participation. For a discussion of the issues surrounding the selection of such comparison or control groups and their use in estimating net impacts,

See: i) Borus, Michael E. Measuring the Impact...,

ii) Judd, Charles M. and Kenny, David A., Estimating the Effects of Social Interventions, Cambridge University Press, Cambridge, 1981.

For examples of national and local evaluations of human resource programs using comparison and control groups to estimate net employment and earnings impacts,

See: i) Friedman, Barry and Hahn, Andrew, The Effectiveness of Two Job Search Training Programs for Economically Disadvantaged Youth, Report Prepared for the Office of Youth Programs, U.S. Department of Labor, Brandeis University, Waltham, 1981;

ii) Mallar, Charles, et.al., The Lasting Impacts of Job Corps, Youth Knowledge Development Report 3.5, U.S. Government Printing Office, Washington, D.C., 1980;

iii) Maynard, Rebecca and Masters, Stanley H., The Impact of Supported Work on Long-term Recipients of AFDC Benefits, Manpower Demonstration Research Corporation, 1981.

66. Uses of such earnings records in tracking the post-program employment and earnings experiences of human resource program graduates are described in the following publications:

i) Morton, J.B., The Feasibility of Collecting Labor Market Supply Data from Existing Records, Oklahoma State Occupational Information Coordinating Committee, Stillwater, 1981;

ii) MDC, Inc., Unemployment Insurance Data: A Study of Their Utility for Follow-Up of CETA Participants in Balance-of-State North Carolina, Final Report, Chapel Hill, North Carolina, 1980;

iii) State of South Carolina, Office of the Governor, JTPA Division, Pre and and Post-CETA Earnings Analysis for OJT Enrollments During the 10/1/80 to 9/30/82 Period: Use of UI Quarterly Report Data, Columbia, 1984.

These earnings records have also been used to track the earnings experiences of dislocated workers in the early years following their displacement from employment.

See: Crosslin, Robert L.; Hanna, James S.; and Stevens, David W.; Identification of Dislocated Workers Utilizing Unemployment Insurance Administrative Data: Results of a Five State Analysis, Research Report submitted to the National Commission for Employment Policy, Washington, D.C., April 1984.

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67. These earnings records in "wage reporting states" are subject to a number of deficiencies; however, careful use combined with appropriate selection of local control/comparison groups can increase their utility to a substantial degree. For a review of their technical shortcomings,

See: National Governor's Association, Center for Policy Research, JTPA Follow-Up: A Decision-Makers Guide to the Issues, Washington, D.C., 1984.

68. The role of program evaluation in providing such feedback effects upon policymaking and program planning is discussed in greater detail in the following publications:

- i) Mansfield, Luci and Sum, Andrew, The Role of Program Evaluation in a Local CETA Prime Sponsor System, Report Prepared for the City of Philadelphia Office of Employment and Training, 1980;
- ii) Nakamura, Robert T. and Smallwood, Frank, The Politics of Policy Implementation, pp. 67-83;
- iii) Weiss, Carol H., Evaluation Research, Prentice-Hall, Englewood Cliffs, New Jersey, 1972.

69. Odell, Charles E., OIS and the Employment Security System: A Needs and Resources Assessment, Report Prepared for National Occupational Information Coordinating Committee, March 1981.

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CHAPTER FIVE FOOTNOTES

1. See: Leibhafsky, E.E., "Interfacing the Production and Utilization of labor Market Information," an unpublished paper presented to a Seminar on Labor market Information, Atlanta, January 1976.

2. Kutscher, Ronald E., "Remarks Before a Labor market Information Conference in Atlanta georgia, June 1983," reprinted in Monthly Labor Review, November 1983.

3. For analyses of the role of demographic forces in influencing overall labor force growth as well as employment and earnings opportunities for selected demographic subgroups,

   See: i) Fullerton, H.N. and Tschetter, J., "The 1995 Labor Force: A Second Look," Monthly Labor Review, November 1983, pp. 3-10;

   ii) Russell, Louise B., The Baby Boom Generation and the Economy, The Brookings Institution, Washington, D.C., 1982;

   iii) Hoy, John C. and Bernstein, Melvin H. (Editors), New England's Vital Resource: The Labor Force, American Council on Education, Washington, D.C., 1982.

4. See: i) Flaim, Paul O., "The Effect of Demographic Changes on the Nation's Jobless Rate," Monthly Labor Review, March 1979, pp. 13-23;

   ii) Cain, Glen G., "The Unemployment Rate as an Economic Indicator," Monthly Labor Review, March 1979, pp. 24-35.

5. See: i) 97th U.S. Congress, Job Training Partnership Act of 1982. "Section 203";

   ii) Department of Education, Office of Vocational and Adult Education, State Vocational Education Program and Secretary's Discretionary Programs of Vocational Education, Federal Register, January 25, 1985.

6. For example, demographic, labor force, and socioeconomic data for states and local areas are available in the following Census publications:

   i) U.S. Department of Commerce, Bureau of the Census, 1980 Census of Population, Volume 1, Characteristics of Population, U.S. Government Printing Office, Washington, D.C., 1981;

   ii) U.S. Department of Commerce, Bureau of the Census, General Social and Economic Characteristics, U.S. Government Printing Office, Washington, D.C., 1983.

7. The estimate of the share of the nation's working-age population in this age group was based on the total population rather than the civilian noninstitutional population.

   See: U.S. Department of Commerce, Bureau of the Census, General Population Characteristics: United States Summary, PC80-1-B1, "Table 48," pp. 1-15, U.S. Government Printing Office, Washington, D.C., 1983.

8. For a review of previous efforts to estimate the potential size of the displaced homemakers population in Massachusetts and other states,

   See: Winkeller, Rachel and Granville, Jacqueline, Preliminary Estimates of the Population for a Statewide Displaced Homemaker Program, Policy and Evaluation Division, Massachusetts Department of Manpower Development, Boston, June 1978.

9. To be more precise, the data appearing in Table 6-2 pertain to persons designated as "householder" in each family. The term Census. The concept "householder" is used to represent that person in whose name the housing unit of the family is owned or rented. All other persons in the family are classified in terms of their relationship to this householder.

10. For a review of changes in the size and composition of poverty families and the increasing feminization of poverty,

    See: i) Pearce, Diana M., "The Feminization of Ghetto Poverty," Society, November/December 1983, pp. 70-75;

    ii) Harrington, Michael, The New American Poverty, Holt, Rinehart, and Winston, New York, 1984;

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iii) Carballo, Manuel and Bane, Mary Jo, The State and the Poor in the 1980's, Auburn House Publishing Company, Cambridge, 1984.

11. See: i) Bowen, William G. and Finegan, T. Aldrich, The Economics of Labor Force Participation, Princeton University Press, Princeton, 1969;

ii) Smith, Ralph E. (Editor), The Subtle Revolution: Women at Work, The Urban Institute, Washington, D.C., 1979.

12. See: 97th U.S. Congress, Job Training Partnership Act of 1982, "Section 203(a)(2) and (b)(3)."

13. For examples of such studies,

See: i) Alper, Neil; Sum, Andrew; and Tortora, Frank; Labor Force Participation Behavior of Married Women in Massachusetts and New England and the Influence of Married Women's Earnings on the Level and Distribution of Family Incomes, Report Prepared for the New England Business and Economics Conference, Hyannis, Mass., Nov. 1980;

ii) Horn, Robert N., "Labor Market Segmentation in New England: Empirical and Case Studies," Ph.D. Dissertation, University of New Hampshire, 1978;

iii) Mazzeo, Katherine and McNalley, Margaret, Poverty Among Female-Headed Families in Massachusetts, Policy and Evaluation Division, Massachusetts Department of Manpower Development, Boston, 1979;

14. As we noted in Chapter Two, replacement demands are generated by a number of different factors, including retirements, deaths, occupational transfers, and other withdrawals from the labor force, both temporary and permanent. The 55-64 year old population will provide the bulk of retirements during the next ten years, but not necessarily above average fractions of replacements for other reasons, except deaths.

15. The long-form questionnaire used in conducting the 1980 Census also collected information on the labor force activities of respondents in the previous calendar year. By combining the data on total week of employment and unemployment during calendar year 1979, we can estimate total weeks of labor force attachment for each of the population subgroups appearing in Table 6-4.

See: U.S. Department of Commerce, Bureau of the Census, Census of Population and Housing: 1980, Public-Use Microdata Samples, Technical Documentation, pp. K-58 to K-67.

16. The data on the sex composition of the civilian labor force of the U.S. during March of 1980 were derived from the following source:

U.S. Department of Labor, Bureau of Labor Statistics, Employment and Earnings, april 1980, "Table A-3," pp. 21-22.

17. Ibid, pp. 21-22.

18. For a review of the uses of the decennial Census data in identifying potential retirement demands by industry and their implications for human resource policies and programs at the state and local level,

See: Doeringer, Peter B. and Sum, Andrew, Job Markets and Human Resource Programs for Older Workers in New England, Report Prepared for the New England Board of Higher Education, December 1983.

19. Fertility rates of women in this state, particularly those for the U.S. as a whole. Gaps in labor force participation rates of white and black males have been rising steadily over the past few decades.

See: i) Sum, Andrew and Simpson, Paul, The Deteriorating Employment Situation of America's Teenagers: Implications for National Employment and training Policy, Center for Labor Market Studies, Northeastern University, 1982;

ii) Anderson, Bernard and Sawhil, Isabel (Editors), Youth Employment and Public Policy, Prentice-Hall, Englewood Cliffs, New Jersey, 1980.

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20. These findings are quite consistent with those for the U.S. as a whole. Gaps in labor force participation rates of white and black males have been rising steadily over the past few decades.

See: i) Sum, Andrew and Simpson, Paul, The Deteriorating Employment Situation of America's Teenagers: Implications for National Employment and Training Policy, Center for Labor market Studies, Northeastern University, 1982;

ii) Anderson, Bernard and Sawhil, Isabel (Editors), Youth Employment and Public Policy, Prentice-Hall, Englewood Cliffs, New Jersey, 1980

21. The Hispanic population is not a homogeneous one. It is comprised of a variety of ethnic and racial groups whose labor force and employment behavior frequently differ from each other in substantive ways.

See: i) Office of Youth Programs, U.S. Department of Labor, A Profile of Hispanic Youth, Youth Knowledge Development Report 10.2, U.S. Government Printing Office, Washington, D.C., 1980;

ii) Harrington, Paul, Sum, Andrew, and Vinson, Robert, Poverty and Income Inadequacy Among Hispanics in Massachusetts: Implications for State Employment and Training Policy, Report Prepared for the Massachusetts Division of Employment Security, Boston, 1985.

22. For a review of empirical evidence on the relationships between the labor force behavior of women, their marital status, and other family income,

See: i) Bowen, William G. and Finegan, T. aldrich, The Economics of Labor Force Participation, Princeton University Press, Princeton, 1969;

ii) Mott, Frank L. (Editor), The Employment Revolution, The MIT Press, Cambridge, 1982;

iii) Hayghe, Howard, "Working Mothers Reach Record Number in 1984," Monthly Labor Review, December 1984, pp. 11-17.

23.. For a more detailed review of the labor force overhang and discouraged worker populations and their cyclical behavior,

See: i) Ginzberg, Eli, "The Job Problem," Scientific American, November 1977, pp. 43-51;

ii) Finegan, T. Aldrich, The Measurement, Behavior, and Classification of Discouraged Workers, Background Paper No. 13, National Commission on Employment and Unemployment Statistics, Washington, D.C., June 1978;

iii) Finegan, T. Aldrich, "Discouraged Workers and Economic Fluctuations," Industrial and Labor Relations Review, Volume 35, Number 1, October 1981, pp. 8-102.

24. For a description of the past uses of unemployment data in allocating federal economic development, job training, and public workers monies,

See: i) National Commission on Employment and Unemployment Statistics, Counting the Labor Force, U.S. government Printing Office, Washington, D.C., 1979;

ii) National Commission on Employment and Unemployment Statistics, Data Collection, Processing and Presentation: National and Local, U.S. Government Printing Office, Washington, D.C., 1980;

iii) Peterson, Kent A., "Allocating Federal Funds through Local Unemployment Rates," Monthly Labor Review, October 1977, pp. 45-46.

25. For a review of the use of unemployment data in allocating JTPA Title II monies to states and local service delivery areas,

See: 97th U.S. Congress, Job Training Partnership Act, "Section 201(b)(1)".

26. See: Department of Education, "State Vocational Education Program and Secretary's Discretionary Programs of Vocational Education," Federal Register, January 25, 1985.

27. For a review of the use of local unemployment data in developing estimates of expected performance for local service delivery areas under JTPA,

    See: "JTPA Performance Standards Worksheets for FY 1985," Employment and Training Reporter,

28. LAUS data also have been indirectly used by some states in allocating JTPA incentive grant monies among local service delivery areas. The actual and predicted scores of SDA's on each performance standard are used to determine their share of incentive monies.

    See: Michigan Department of labor, Maximum Success Ratio Formula, Lansing, 1985.

29. Findings of the recent BLS survey of dislocated workers and their employment problems revealed that the probability of being employed in january 1984 was strongly associated with the age of the worker. Older workers (55+) were least likely to have been re-employed at the time of the survey.

    See: Department of Labor, Bureau of Labor Statistics, BLS Reports on Displaced Workers, November 1984.

30. Job tenure of American workers, both men and women, rises with age throughout age 65. During January 1983, the median job tenure of employed persons 55-64 years of age was 13.6 years in comparison to 3.5 years for 25-34 year olds.

    See: Sehgal, Ellen, "Occupational Mobility and Job Tenure in 1983," Monthly Labor Review, October 1984, pp. 18-23.

31. For a review of recent national evidence on the female/male unemployment differential,

    See: Seeborg, Michael and DeBoer, Larry, "The Female-Male Unemployment Differential," Monthly Labor Review, November 1984, pp. 8-15.

32. For an overview of black/white teen unemployment differences and their causes,

    See: i) Bowers, Norman, "Young and Marginal: An Overview of Youth Employment," in Young Workers and Families: A Special Section, BLS Special Labor Force Report 233, U.S. Government Printing Office, Washington, D.C., 1980;

    ii) Freeman, Richard B. and Wise, David, (Editors)d, The Youth Labor Market Problem: Its Nature, Causes, and Consequences, University of Chicago Press, Chicago, 1982;

    iii) Osterman, Paul, Getting Started: Youth in the Labor Market, MIT Press, Cambridge, 1980.

33. See: U.S. Department of Labor, Bureau of Labor Statistics, Employment and Earnings, April 1980, "Table A-3", pp. 21-22.

34. For an example of such shift/share analyses of changing employment opportunities for women in the U.S.

    See: Davis, Howard, "Employment Gains of Women by Industry, 1968-78", Monthly Labor Review, June 1980, pp. 3-9.

35. For more detailed discussion of the use of employment/population ratios in describing overall employment conditions and judging the macro-performance of national and state economies,

    See: i) Shiskin, Julius, "Employment and Unemployment: The Doughnut or the Hole", Monthly Labor Review, February 1976, pp.3-10;

    ii) Cain, Glen G., "Labor Force Concepts and Definitions in View of Their Purposes," in Concepts and Data Needs, U.S. Government Printing Office, Washington, D.C., 1979, pp. 3-45.

36. An analysis of the nature and causes of black youth employment problems underlying the relatively low employment/population ratio of black male teens,

    See: Freeman, Richard B. and Holzer, Harry J., "Young Blacks and Jobs What We Now Know," The Public Interest, Winter 1985, pp. 18-31.

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37. As noted in Chapter Three, each of these data bases has its own set of strengths and limitations. For a more detailed review of the issues related to the merits of alternative data bases for conducting labor force analysis and for potential changes in the CPS and LAUS programs,

See: i) Sum, Andrew and Harrington, Paul, Labor Market and Occupational Information for CETA Prime Sponsor Policy-making, Planning and Program Operations, pp. 82-92, 137-165;

ii) Hamel, Harvey R. and Tucker, John T., "Implementing the Levitan Commission's Recommendations to Improve Labor Data," Monthly Labor Review, February 1985, pp. 16-23.

38. The 90% confidence interval for the state's unemployment rate in 1983 would range from 5.3% to 6.7%. Given the size of the sample error potentially associated with the unemployment rate of this state, one could not conclude that the unemployment rate of State A was significantly lower in 1983 in comparison to 1981. For a review of the size of sampling errors associated with state CPS estimates,

See: U.S. Department of Labor, Bureau of Labor Statistics, Geographic Profile of Employment and Unemployment, 1983; pp. 130-143.

39. See: U.S. Department of Labor, Bureau of Labor Statistics, Employment and Earnings, January 1985, "Table A-3", p.17.

40. Annual average estimates of civilian labor force participation rates and unemployment rates for more detailed population subgroups than those appearing in the Geographic profiles can be obtained from the Bureau of Labor Statistics or produced with the use of the CPS public use tapes. For an example of such analysis,

See: Sum, Andrew and Tortora, Frank, Unemployment and Labor Market Related Economic Hardship in Massachusetts; Their Size and Impacts of the Family, Paper Prepared for the Conference on Unemployment During Economic Depression: Its Impact on the Family, Boston, 1983.

41. The labor force participation rate of all males in the U.S. fell from 77.4% in 1981 to 76.8% in 1983 while the participation rate of women increased from 52.5% to 53.0%.

See: U.S. Department of Labor, Bureau of Labor Statistics, Employment and Earnings, January 1985, "Table A-2," p. 16.

42. The 1981 annual average data for State A were derived from the following BLS publication:

U.S. Department of Labor, Bureau of Labor Statistics, Geographic Profile of Employment and Unemployment, 1981, Bulletin 2156, U.S. Government Printing Office, Washington, D.C., 1982.

43. For a more detailed discussion of male/female unemployment differences in the U.S.,

See: Seeborg, Michael and DeBoer, Larry, op. cit.

44. As a result of high sampling error for teens, one could not consider this rise in the E/P ratio to be statistically significant.

45. For other examples of uses of CPS data to examine trends in employment problems of minority workers at the state level,

See: Commonwealth of Massachusetts, Division of Employment Security and Center for Labor Market Studies, Massachusetts Employment: Creating a Window of Opportunity in the Mid-1980's, Boston, 1985.

46. During 1985, monthly labor force data for 11 large states, the city of New York, and Los Angeles - Long Beach Metropolitan area are produced directly from the CPS data,

See: U.S. Department of Labor, Bureau of Labor Statistics, Employment and Earnings, February 1985, p. 200.

47. The accuracy of the LAUS data on unemployment levels and rates for local areas has been questioned at various times since the inception of the program. Unemployment rates for local economies experiencing sharp and prolonged dislocations may be biased downward. For a recent example of such a situation,

See: i) "Youngstown Jobless Rate Study Spurs Ohio Debate on BLS Figures, Formulas," Employment and Training Reporter, January 9, 1985, pp.507-509.

ii) Buss, Terry, Assessing the Accuracy of the Bureau of Labor Statistics Monthly Unemployment Rates: A Case Study of the Youngstown/Warren SMSA, Center for Urban Studies, Youngstown State University, Youngstown, 1984.

48. The amount of demographic detail and the types of labor force activity measures for which projections are provided will vary from state to state. For examples of the types of labor force projections provided by state ES agencies,

See: i) Arkansas Employment Security Division, Annual Planning Information, Fiscal Year 1984, Little Rock, 1984;

ii) Michigan Employment Security Commission, Bureau of Research and Statistics, Annual Labor Market Information Report Program Year 1985, Michigan Detroit, 1985.

49. Program Year 1985 represents the time period July 1, 1985 to June 30, 1986. This time period reflects current program years for JTPA operations.

50. See: U.S. Department of Labor, Bureau of Labor Statistics, Employment and Earnings, January 1985, "Table 5." p.160.

51. For a more detailed review of the impacts of training programs in different labor market environments and the existence of vacuum and displacement effects,

See: Sum, Andrew, et.al., Evaluating the Performance of Employment and Training Programs at the Local Level, Vol. II: The Role of Process, Outcome, and Benefit-Cost Analysis,

52. For examples of such studies,

See: i) Gardner, John A., Paul Campbell, Paul, and Patricia Seitz, Influences of High School Curriculum on Determinants of Labor Market Experiences, The National Center for Research in Vocational Education, The Ohio State University, Columbus, Ohio 1982;

ii) Mangum, Garth L. and Walsh, John, A Decade of Manpower Development and Training, Olympus Publishing Company, Salt Lake City, 1973;

iii) Taggart, Robert, "A Review of CETA Training," in The T in CETA: Local and National Perspectives, (Editors: Sar A. Levitan and Garth L. Mangum), W.E. Upjohn Institute for Employment Research, Kalamazoo, 1981;

iv) Bloom, Howard S., "The Impact of Adult-Oriented Job Training Programs: A Synthesis of the Best Available Evidence," Unpublished Paper, John F. Kennedy School of Government, Harvard University, December 1984.

53. These estimates are based on unpublished findings from the March 1981 CPS tape for the nation. Computer tabulations for the data were prepared by the Center for Labor Market Studies. A summary of these findings appear in the Instructor's Guide for Exercise Number Two.

54. See: U.S. Department of Commerce, Bureau of the Census, Census of Population and Housing, 1980: Public Use Microdata Samples, Technical Documentation, U.S. Government Printing Office, Washington, D.C., 1983.

55. These are compound growth rates not simply averages obtained by dividing the entire six-year growth rate by six.

56. A number of states have generated industry/occupation matrices for substate areas. Thus, the occupational staffing patterns for two and many three-digit SIC industries in these substate areas can be used to conduct such types of analyses.

57. See: Lambert, Roger, Classification Structures for Career Information, Occupational Characteristics, Volume II, Reports Prepared for the National Occupational Information Coordinating Committee, Washington, D.C., 1981.

58. Evidence from the 1970's for the New England region revealed that the criteria used by many human resource agencies to classify jobs by their training-related status

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were quite varied. These divergent classification practices made it difficult, if not impossible, to aggregate placement data across programs,

See: Sum, Andrew, Mazzeo, Katherine, McLaughlin, Francis, and Zornitsky, Jeffrey, Evaluating the Performance of Employment and Training Programs at the Local Level, Volume I, The Role of Program Evaluation at the Local Level, Employment and Training Administration, Boston, 1978.

59. Both the mean and median are measures of central tendency; however, their values will frequently differ for variables such as wages due to outliers. The median is unaffected by such outliers; however, the mean will be influenced by extreme observations. For small samples, both the median and mean hourly wages should be presented.

60. For a review of the major elements of wage theory and the basic features of marginal productivity theory,

See: i) Reynold, Lloyd J., Labor Economics and Labor Relations, 7th Edition, Prentice-Hall, Englewood Cliffs, New Jersey, 1982;

ii) Ehrenberg, Ronald G. and Smith, Robert S., Modern Labor Economics, Scott, Foresman and Co., Glenview, Illinois, 1983.

61. For a detailed examination of the issues involved in designing followup studies and choosing appropriate outcome measures

See: Sum, Andrew, et.al., Evaluating the Performance of Employment and Training Programs at the Local Level, Volume III: The Design and Implementation of Local Followup Evaluation Systems, U.S. Department of Labor, Employment and Training Administration, Boston, 1978

62. See: Sum, Andrew, "Labor Market Impacts of Vocational Education Programs in the United States," in Vocational Education in Brazil, Northeastern University, International Center for Higher Education and Employment, Boston, 1985.

63. For a review of evidence on the nature, degree, and outcomes of occupational and industrial mobility,

See: i) Cournoyer, Paul and Sum, Andrew, Occupational Mobility of Workers in Massachusetts: An Analysis of the Factors Influencing Movement of Workers Out of Low Wage Occupations, Massachusetts Department of Manpower Development, Boston, 1978;

ii) Leigh, Duane, "Occupational Advancement in the Late 1960's: An Indirect Test of the Dual Labor Market Hypothesis," Journal of Human Resources, Vol. XI, 1975, pp. 155-170;

iii) Sommers, Dixie, Empirical Evidence on Occupational Mobility, The National Center for Research in Vocational Education, The Ohio State University, Columbus, 1979.

64. See: 97th U.S. Congress, Job Training Partnership Act of 1982, "Section 106(a)(2)."

65. See: i) Ashenfelter, Orley, "Estimating the Effect of Training Programs on Earnings," Review of Economics and Statistics, February 1978, pp. 47-57;

ii) Bloom, Howard S. and McLaughlin, Maureen, CETA Training Programs Do — They Work for Adults, Congressional Budget Office and the National Commission for Employment Policy, Washington, D.C., 1982.

66. Several innovative methods have been used to estimate these net earnings impacts,

See: Bloom, Howard, "The Impact of Adult-Oriented Job Training Programs: A Synthesis of the Best Available Evidence," Unpublished paper, John F. Kennedy School of Government, Harvard University, Cambridge, 1984.

These training materials were prepared by a training team composed of contractors and state agency personnel under NGA Grant No. E-9-M-4-0147, with the U.S. Department of Labor for the National Occupational Information Coordinating Committee (NOICC).

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